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An Art Program Evaluation of Daily Life Therapy for Children with Autism

Rowena Elise Talusan-Dunn
Lesley University

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AN ART PROGRAM EVALUATION OF DAILY LIFE THERAPY FOR CHILDREN WITH AUTISM

A DISSERTATION
 submitted by

ROWENA ELISE TALUSAN-DUNN

In partial fulfillment of the requirements
 For the degree of
 Doctor of Philosophy

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Ph.D. in Expressive Therapies Program

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Final approval and acceptance of this dissertation is contingent upon the candidate’s submission of the final copy of the dissertation to the Graduate School of Arts and Social Sciences.

I hereby certify that I have read this dissertation prepared under my direction and recommend that it be accepted as fulfilling the dissertation requirement.

[Signature] - Dissertation Director

I hereby accept the recommendation of the Dissertation Committee and its Chairperson.

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SIGNED: [Signature]
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# TABLE OF CONTENTS

LIST OF TABLES ........................................................................................................... 8

LIST OF FIGURES .......................................................................................................... 9

ABSTRACT ...................................................................................................................... 10

1. INTRODUCTION ........................................................................................................ 12
   Background and Context .......................................................................................... 12
      Autism Spectrum Disorders .................................................................................. 12
      Creativity and Structured Art Experiences vs. Non-Structured Art Experiences. 13
   Statement of Purpose and Research Questions ..................................................... 20
   Research Approach ................................................................................................. 20
   Assumptions and Limitations ................................................................................. 21

2. LITERATURE REVIEW ........................................................................................... 23
   Autism Spectrum Disorders ..................................................................................... 24
      Current Assessments in Autism ........................................................................... 24
   Art, Science and Creativity ..................................................................................... 30
      Art Therapy and Neurofunctioning ....................................................................... 32
   Addressing Deficit Areas ....................................................................................... 35
      Treatment Solutions/Treatment Effectiveness ....................................................... 40
   Art Education, Art Therapy and ASD ..................................................................... 40
      Art Education ........................................................................................................ 40
         Potential Benefits .............................................................................................. 41
         Current Research in Art Education .................................................................... 43
      Art Therapy ........................................................................................................... 43
         Benefits .............................................................................................................. 44
         Current Studies in Art Therapy for the child with ASD .................................... 44
   Daily Life Therapy and the Boston Higashi School .................................................. 50
      Conceptual Framework/Methodology .................................................................... 51
   Art as Vehicle for Instruction ................................................................................ 53
   BHS Art Program ...................................................................................................... 55
   Structured Art Experiences using the Daily Life Therapy Method .......................... 57
   DLT History of Research Studies ............................................................................. 58
   Summary ................................................................................................................... 59
      Lack of Evidence-Based Research on Art education, Art Therapy and ASD ........ 59
      Lack of Educational Funding toward establishing School Art Programming ........ 60
      Lack of Research supporting the use of Structured Art Experiences for the child with ASD in School setting ......................................................... 61
      Art Assessment and Data Collection establishing Effectiveness of School Programming ........................................................................................................... 61

3. METHOD ................................................................................................................... 63
4. RESULTS

Analysis of Art Products ................................................................. 75
Rater Agreement ............................................................................... 75
Analysis of Artwork .......................................................................... 76
Repeated Measures Analyses ............................................................ 78
Analysis of Prompts ......................................................................... 79
Analysis of Ratings by age and CARS scores .................................... 83

Research Question #1: How does DLT meet the needs of children with ASD? ........................................... 84
Research Question #2: Were the art goals and/or objectives met or not met using the DLT method? .................. 85
Research Question #3: Did the staff participants feel this methodology works, and if so, why? ......................... 87
Research Question #4: What is the value of teaching art to the child with ASD? ............................................... 89

Summary of Responses ..................................................................... 91
Themes ............................................................................................ 91
Clusters ........................................................................................... 92
Categories ....................................................................................... 93
Summary ........................................................................................ 95

5. DISCUSSION

Research Question #1: Is there evidence of success with the art experience goal and objectives in the art products? ................................................. 96
Research Question #2: What is the experience of the art education staff facilitating this technique? .................... 98
Research Question #3: Is there evidence overall that the art program meets its stated goals? .......................................................... 99
Assumptions and Limitations of Study ................................................. 100
Assumptions .................................................................................... 100
Limitations ...................................................................................... 100
Implications of Findings .................................................................. 101
Recommendations for Future Research .............................................. 104
Conclusion ........................................................................................ 107

APPENDIX A: Letter of Parental/Guardian Permission for Student Participation .............................................. 109
LIST OF TABLES

TABLE 1, DSM-IV-TR Criteria for Defining Social and Communication Deficits in Autism .. 25
TABLE 2, Criteria for Inclusion in Meta-Analysis by Bellini, Peters, Brenner and Hopf (2007, pp. 155-156) ................................................................. 37
TABLE 3, BHS Art Rating Scale for Elementary Student Participant, Draw ....................... 68
TABLE 4, BHS Art Rating Scale for Elementary Student Participant, Color ..................... 69
TABLE 5, BHS Art Rating Scale Legend of Assessment Terminology ............................. 70
TABLE 6, Rater Agreement as Percent Agreement ............................................................ 75
TABLE 7, Rater Agreement Calculated as Pearson Correlation Coefficients ....................... 76
TABLE 8, Descriptive Statistics for Draw and Color Artworks across three time periods (Fall, Winter, Spring/Summer) ................................................................. 77
TABLE 9, Descriptive Statistics for Prompts for Draw and Color Artworks across three time periods (Fall, Winter, Spring/Summer) ................................................................. 78
TABLE 10, Prompts Recorded for Color Artwork across three time periods (Fall, Winter, Spring/Summer) .................................................................................. 81
TABLE 11, Prompts Recorded for Color Artwork across three time periods (Fall, Winter, Spring/Summer) .................................................................................. 82
LIST OF ILLUSTRATIONS

Figure.

1. Frequency of Themes found among Participant Responses based on how DLT meets the needs of the children with ASD ................................................................. 85

2. Frequency of themes based on whether or not the art goals/objectives were met using DLT .................................................................................................................. 87

3. Frequency of themes found among Participant Responses based on the effectiveness of the DLT methodology .................................................................................. 89

4. Frequency of themes found among Participant Responses based on effectiveness of teaching art to the child with ASD ........................................................................ 91

5. Themes found across Research Questions #1-4 based on Frequency of Respondants .................................................................................................................. 92

6. Clusters found across Research Questions #1-4 based on Frequency of Respondants .................................................................................................................. 93

7. Categories found across Research Questions #1-4 based on Frequency of Respondants .............................................................................................................. 94
ABSTRACT

The author evaluated a private school’s art program in 2009-2010 that used Daily Life Therapy (DLT) for students diagnosed with autism spectrum disorders (ASD). Significant increases in numbers of persons diagnosed with ASD have been noted in the last two decades. Several methodologies claim success in programming for children with ASD, but lack empirically based research and it is unclear which are most beneficial.

This program evaluation used a mixed-method design to address the following questions: (1) is there evidence of success with the art experience goals and objectives in the art products, (2) what is the experience of the art education staff facilitating this technique, and (3) is there evidence overall that the art program meets its stated goals? The study focused on 26 culturally diverse students diagnosed with ASD, ranging between the ages of 8-14 years (27% female, 73% male). The study focused on two analyses; (1) analysis of six art products per child at three times of the year were rated specifically for art lessons’ goals and objectives, by two independent raters, and (2) analysis of interview data where teachers were questioned about the DLT method in art instruction. Data revealed: participants performed significantly (draw, $p < .01$ and color, $p < .001$) better at midyear than in the fall or early summer; a significant ($p < .01$) increase of teacher prompts for artworks at midyear was also evident; and results indicated differences between groups defined by Childhood Autism Rating Scale Second Edition (Schopler, Reichler & Rochen-Renner, 2010) score and age, but only for drawing tasks. Analysis of the interview data indicated emphasis placed on the following themes: (1) opportunities through an individualized method ($f= 31\%$), (2) consistency through prompt assistance and active participation ($f= 52\%$) and (3) improvement in relationships and connection to the greater world ($f= 16\%$). The combined results were mixed. While teachers reported and described dedication to the method, quantitative data did not clearly reflect meeting program goals and objectives, and
record-keeping issues appeared to be a key factor. The findings showed the necessity for improving programming for students diagnosed on the autism spectrum.
CHAPTER 1

Introduction

The number of children diagnosed with Autism Spectrum Disorders (ASD) has increased dramatically in the last two decades (Hughes, Katsiyannis, McDaniel, Ryan & Sprinkle, 2011). During this time, various methodologies based on a range of philosophical foundations have claimed success in promoting growth and increased functionality for children with ASD. Gense and Gense (2011) acknowledged that most of these approaches presented legitimate reasoning behind their methods, but there is still great debate as to which methods are most effective and efficient. Despite the continued emphasis on evidence based practices, current ASD literature provided no concrete insights related to specific phenotype or diagnostic subtype that can accurately predict which social competence intervention package works best for the child with ASD (Odom, Collet-Klingenberg, Rogers & Hatton, 2010). There is a great need for more empirically based research.

This chapter begins with an overview of ASD along with beneficial services for children on the spectrum. Particularly in the context of ASD, creativity and structured art experiences versus non-structured art experiences will be presented and a brief description of the Daily Life Therapy methodology will be offered. The section will conclude with a statement of purpose, the research questions specific to this study and end with the research approach and limitations to the study overall.

Background and Context

Autism Spectrum Disorders

Autism Spectrum Disorders are a cluster of developmental disabilities characterized by pervasive deficits in socialization and communication, as well as unusual interests or behaviors (Charles, Carpenter, Jenner & Nicholas, 2008). These behaviors include Autistic Disorder, Asperger’s Disorder, and Pervasive Developmental Disorder-Not Otherwise Specified. Taken
from a population-based, multi-site surveillance network including 14 sites and conducted as part of a collaborative agreement with the Centers for Disease Control and Prevention (2011) the total prevalence of ASD in American children aged 8 years ranged between 8 per 1000 and 9 per 1000 in 2006. The prevalence was found to be higher among males than females, ranging from more than six males for every female child in the United States.

*Creativity and Structured Art Experiences vs. Non-Structured Art Experiences*

Creativity can be connected to the link between neurofunctioning and art as it pertains significantly to the child with autism. Through the processes of the brain, the child with ASD is able to connect with art on an involved level because of the visual expression that stimulates sensory-based experiences and emotional expression. Lusebrink (1990) suggested expression through art media might also derive from complex cognitive activity involving decision-making and internal imagery that in turn, activates sensory channels and motor functioning. It can then be suggested that creativity is rooted from this connection. The following section will describe the process of creativity and explore structured art experiences for the child on the spectrum.

The creative imagination is the root of all artistic processes. Nachmanovitch (1990) discussed how intuitive creativity arises within persons. Bringing the individual’s creative imagination to the forefront suggests that art may be based on improvisation. Nachmanovitch (1990) reiterated, “some improvisations are presented as is, whole and at once; others are “doctored improvisations” that have been revised and restructured over a period of time before the public gets to enjoy the work” (p. 6). From the perspective of the child with autism, there are distinct characteristics reflecting spontaneous movement, expression, and creativity. The child with ASD may not pre-plan materials or end products. These children will most likely participate in the moment that is happening, and whatever image or feeling arises will deem the path the process takes. Nachmanovitch referred to the three stages of the creative life cycle as “innocence (or discovery), experience (or the fall), and integration (or rejuvenation or mastery)”
Through repetitive offerings of structured art experiences, the child with ASD can practice these stages of creative life to connect with his or her feelings and the world around them.

Within the moment of participation and experience, there are breakthroughs and ‘sparks’ of awareness that occur. Nachmanovitch (1990) stated, “part of me knows that a surprise, a breakthrough, a new element can come in at any moment and change the equation of my life” (p. 147). Though the engagement of children on the spectrum with others is often inconsistent and fleeting at times, these ‘sparks’ that occur are especially groundbreaking to connecting with the art experience, the art materials they engage with or perhaps the cathartic self-reflection of its creative production.

Structured and unstructured art experiences are an important frame for this research. Unstructured art experiences are described as any type of free art directive (no explicit directions) with provided art materials (prerogative of art facilitator or free choice of the student). Structured art experiences will be described in detail in the following sections. Art education and art therapy can be used through a mixture of free play and structured art experiences to promote creative imagination in a child with ASD. Nachmanovitch (1990) acknowledged that,

Free play must be tempered with judgment, and judgment tempered with freedom to play… This is another of life’s rhythms of systole-diastole, like the alternating contraction and relaxation of muscles, which must be neither rigid nor flabby but in a state of tonus (p. 171).

It is through this combination of education and therapy that children with ASD may be more adept at expressing their authentic selves in the art making process.

Many professionals in the art therapy field question whether or not creativity is authentic if structured art experiences are provided. Some art therapists believe that authentic imagination
cannot be directed in any way, while others defend that specific individuals (like children with ASD) sometimes need a jumping off point to empower themselves to go further. For the purpose of this dissertation study, structured art experiences are encouraged for children with ASD as a means to organize the activity (container), thus providing cognizance of tasks being asked of them, as well as the setup of steps to task (activity) completion. Structured art experiences in this perspective are also suggested to provide a means for coping mechanisms in order to increase tolerance (knowing exactly what to do and when the task will be finished) and availability to promote creative imagination of the child on the spectrum.

Robbins (1998) defined four major positions of the object relations perspective that evolve from the early maternal holding environment as autistic, schizoid, paranoid, and depressive. He recommended, “these positions represent ways of organizing particular character styles that include the patient’s defenses, utilization of space, and view of both self and the object world” (p. 88). Given Robbins’ (1998) theory of organization through progressions, the link between art and neurological connections further promote that structured art experiences for children with ASD may enable them to participate in the activity while working with his or her particular character styles (e.g., rigidity to routine, characteristic defenses of autism, etc.). Hence, structured art experiences promote successful outcome results when provided to such persons. In addition to Robbins’ (1998) recommendation of organization, schools are moving forward to implement programming designed under these faculties for students diagnosed on the spectrum. Methodologies like the Treatment and Education of Autistic and Related Communication Handicaps (TEACCH; Schopler & Harsy, 1995) have emphasized the importance of how children with ASD need structure to organize their thoughts in order to actively participate in the world they live in.

Often, children with ASD are seen as remote or isolated individuals who project specific characteristics or repetitive physical gestures. Robbins (1998) intimated these repetitive
behaviors are soothing gestures to reassure children of themselves in the physical world, by exhibiting this preoccupation with their physical body to “give themselves a sense of connection” (p. 89). By providing a structure of art, the child with ASD can use the creative space to expand on undiscovered sensory motor cues and the movement and shifts of his or her body, thus communicating thoughts, emotions and/or interactive exchange of ideas through his or her storytelling (nonverbal and verbal). Art therapists focus on organizing these impressions into meaningful statements that are then mirrored back to the child. Art therapy offers a container that holds and organizes the different sensory motor mechanisms. Robbins (1998) advised that through this dynamic between therapist and child, communication of deeper meaning could be explored and brought to the forefront to be recognized as form and function. He added, “The therapist and patient soon learn to respect the feeling of aloneness and the need for solitude, as well as the hunger for structure and containment that can potentially change meaninglessness into form” (p. 90). When one creates structure to enable the child with ASD, it provides an alternative outlet of self-concept that delves more deeply into substance rather than superficial projections.

Children with ASD do not function in a specific mold, each person is different from the next. Robbins (1998) propositioned “no patient fits snugly into one single, specific diagnostic category though some seem much more prototypical than others” (p. 104). Most children with ASD will present character forms (defenses, classical affects, behavioral mannerisms) that merge with one another. Each individual is different and unique, mastering certain art practices and failing in others. The idea is to be open to the creative imagination, support the individual in exploring alternative outlets for expression, and welcoming the process it brings forth. Robbins (1998) stated, “It can be difficult to separate from old modes of thinking and to be exposed to and accept new ways of experiencing our patients” (p.104). The work of art therapy with the child with ASD must be constantly open to the primitive states of primary practice or else
therapeutic construction which therapists work to achieve is synthetic. Dually noting the individuality of the autism spectrum, art therapy needs to adapt to the individual’s goals and objectives to best suit his or her needs rather than providing a generic treatment program that assumes to cover the spectrum as a whole. Robbins (1998) concluded,

Regardless of our therapeutic model or particular expressive modality, the challenge of all therapy is to discover the road that reaches deep into the essence of the patient’s existence… Our basic resource is in ourselves: our ability to constantly and creatively plumb the world of the known and unknown to find ways of making contact that will surprise as well as guide us. (p.273)

Another benefit of structured art experiences for children with ASD is the promotion of creative imagination and reflections of the authentic self-process while considering the individuality and character forms that each child presents. The research of Nachmanovitch (1990) and Robbins (1998) establish the purpose that creativity effects beneficial results of using structured art experiences.

Children with autism do not think, learn or respond in the same way as other children with different special needs. Jordan (1999) discussed that the needs of the child with ASD are very specific to the condition of autism and any approach to work with this group must focus primarily on organized time management and structured task directives for optimum experience. Jan Osborne (2003) explored the value between therapy and education for the child with special needs. She pointed out that although art therapy services would best benefit the individuated needs of the child, art professionals in school settings would need to be willing to institute a successful programming venture. Appropriate facilitation of structured art experiences for children on the spectrum needs to be properly setup by training the art department staff (teachers and administrators) on art therapy and its interventions to be most effective to its demographic students. This type of program might necessitate the support of art therapy professionals to
ensure appropriate offering (education and training) of the holistic process. Art professionals in school settings would need to convey an openness to art therapy, be trained by a credentialed art therapist and work collaboratively with the art therapist to design a cohesive treatment plan (e.g., art therapist may work on similar IEP goals for socialization, fine motor skills, daily living skills, etc.).

Art Programming for the Child with ASD

Many professionals working with the child with ASD have found evidence of learning through the use of art. Methods like Daily Life Therapy (Kitahara, 1983) have proposed that children with ASD thrive in their learning processes given structured art activities to organize their thought progressions, properly manage their emotional responses and support success in achieving accomplishment of task directives. As educational institutions have explored alternative approaches, art education and art therapy have frequently been used as active support offerings in the educational treatment of children with ASD.

The Commonwealth of Massachusetts currently offers several programming options for children with ASD. Methodologies that include an art education or art therapy component, such as Daily Life Therapy (Kitahara, 1983) have been widely introduced in private and public school settings to assist appropriate educational goals and objectives for these children. This type of pedagogy is intended to allow the child with ASD to learn and process on an individualized basis and level of developmental capability, recognizing that persons with ASD are unique individuals with distinctive processes of functioning.

The Boston Higashi School (BHS) was established in 1987, in affiliation with the Mushashino Higashi Gakuen in Tokyo, Japan. BHS currently enrolls 124 students ranging from ages 3-22 years. The school offers two programs, Day (217 days/year) and Residential Treatment (304 days/year) programming for individuals with ASD. BHS follows the educational methodology of Daily Life Therapy (DLT).
In 2008, BHS requested a team of clinicians to evaluate and assess their educational methodology to provide empirically based evidence on the effectiveness of the program. Art plays an important role in BHS educational programming. Nearly 30 years ago Dr. Kiyo Kitahara, the creator of the DLT framework, surmised that the concentration on the arts was to “focus on the children’s strengths, in the hope of developing avenues for self-expression and building self-esteem” (Quill, Gurry & Larkin, 1989, p. 633). By participating in a variety of art activities, the student with ASD is able to cultivate self-expression, creativity and a perspective of art and the world around them. Kitahara (1983) supported that by providing art as a primary subject area in the curriculum, students are able to develop skills as individuals (refining fine motor skills) and team members (social skills building, ego development).

The understanding and appreciation of art enables the individual with ASD to establish awareness of social participation and appropriate interactions. The basic tenets of the DLT program are based upon four areas. The first is to aim at the social independence of the child with ASD through persistent training in areas of deficiency to build up and strengthen the child’s abilities to overcome the barriers that impede them. The second is to provide a systemized and detailed educational curriculum that combines the daily life of each child, their psychological age, degree of their ASD, type of autism, etc. The third area provides experiential learning to fill in the developmental gap between the child and his or her “typically developed” peers. The last area focuses on providing consistent guidance at both school and home environments so the individuality of the child will be considered in all of their experiences. Some of the desired improvements include developing self-esteem and independent living skills; improving physical stamina, coordination and strength; stimulating a broad range of intellect by including music, art and drawing; and, overcoming challenges and obstacles while gaining confidence in one’s own successes. The art component fits into the DLT program as a primary curriculum area (Kitahara, 1983). The role of art in the DLT method is to promote more meaningful experiences and to
enhance authentic living (being part of the world by interacting and responding, not only observing).

**Statement of Purpose and Research Questions**

The purpose of this dissertation was to document the BHS art program effectiveness for children with ASD. The aim was to assess how well the program addressed its goals, if evidence was discernable in the artwork of enrolled children with ASD, to examine why and how art education might be successful with these students, and to provide other educators the information they need to implement similar programs in their own schools. Using a mixed-method design, the following research questions served as the basis for this study:

1. Is there evidence of success with the art experience goals and objectives in the art products?
2. What is the experience of the art education staff facilitating this technique?
3. Is there evidence overall that the art program meets its stated goals?

**Research Approach**

With the approval of the Institutional Review Board at Lesley University, this mixed-method study comprised a program evaluation of art education at the Boston Higashi School. The BHS requested an outside evaluation of their program; Dr. Michaela Kirby and the researcher conducted the evaluation. The goal was to provide empirical evidence on whether the art program was achieving its goals in the areas of draw and color. Over the span of one academic school year (2009-2010), the art portfolios of 26 student participants were collected and evaluated using a rating scale designed by the researcher for this study. Teacher lesson plans, student progress notes and student prompt logs were collected and used in data analysis. The art process was facilitated previous to the study and no contact was made between the researcher and the participants. The study also used interviews to examine the experiences of
four BHS art education department staff members to explore their perspectives on the program and the DLT method.

**Assumptions and Limitations**

Based on the researcher’s experience of working with children with ASD, four assumptions were made at the onset of this study. The first assumption was that traditional methods of working with the child with ASD do not elaborate their use of structured art. Specifically, these educational programs do not identify how the structure of art lessons is determined, how art goals (and/or objectives) are set and how the format of art instruction is designed for this population. The second assumption reflected that structured art programming for the child with ASD is a field worthy of study in Art Education and Art Therapy. The third assumption was that art program evaluation is a useful approach in studying the efficacy of such practices in educational programming for children with autism. The fourth assumption was that current art assessments are frequently not implemented into educational programs, thus appropriate student class assignments and individual skill sets lack a baseline for this population.

Although research in the area of art education and art therapy shows positive outcomes for the child with ASD, more studies are needed at this time. Art has shown significant potential in aiding growth and achievement, but current studies show a lack of empirically based research to support such practices (Odom, et al., 2010). Dually noted, with the staggering rise in individuals diagnosed with ASD, government funding has recently made opportunities available to investigate this area of interest. To determine whether or not the outcome effects are based on art alone, or rather the therapeutic offering of art therapy is a significant question.

Currently, there is no research supporting the use of structured art experiences for the child with autism in school settings. This is an important topic because of the potential positive factors art might provide for this type of child including, improving areas of deficits, understanding perceptions of the world, linking concepts of art media and the development of
more appropriate educational programming that hones in on the individual needs of such persons. Schools are opening up to alternative approaches such as art therapy as a parallel service to art education while focusing in on smaller groups to enhance the learning experience. Special education departments are also widening their interest and supports into the effectiveness of tactile art media (e.g., sculpture, claywork, three-dimensional media) to support active learning and participation among students with disabilities (Yonkers Public Schools Department of Special Education, 2003). The therapeutic offering of art serves as a multi-step process of interacting with the object (art medium) and exploring what derives from that activity. In addition, the emotional connections and responses (emotional skills) from the experience can promote concrete thinking (cognitive functioning skills) that can be applied to communicating (verbal and/or nonverbal) with the world around them.

Clinical art therapists focus their treatment planning on the individuated needs of the child with ASD. Structured art experiences used within the therapeutic process of art making are fashioned to provide organized thought processes to minimize anxiety over new transitions and experiences (Talusan-Dunn, 2009). The need for structured art experiences is also supported through the building of coping mechanisms that prepare the child with ASD for information processing. By decreasing anxiety over new transitions and experiences, the child with ASD is able to function more appropriately (decreasing self-stimulatory behaviors and inappropriate behavioral affects) for the intake of new information and cognitive functioning. Continued documentation of art programs for children with ASD, need to examine if, why, and how art education is successful with these students, and to provide other educators the information they need to implement similar programs in their own schools.
CHAPTER 2: LITERATURE REVIEW

Introduction

The rise of students diagnosed on the autism spectrum has resulted in an increase of current methodologies in school settings available for such persons (Beecher & Darragh, 2011). The purpose of this review is to examine existing research on the use of art education and art therapy to treat children with autism. Autism Spectrum Disorder (ASD) has inspired a cornucopia of research that explores the underpinnings of autism and seeks treatment solutions. This research has shown that there is a large amount of variability in the disorder, which affects both the challenges impacting on students and their families and the effectiveness of treatments (Seitler, 2011). Art education and art therapy have been used as parallel services for students with ASD, but successful programming demands empirically based research support (Odom, Collet-Klingenberg, Rogers & Hatton, 2010). This review will survey previous research related to six areas covering: defining ASD; art, science and creativity; ASD deficit areas; art education, art therapy and ASD; Daily Life Therapy at the Boston Higashi School; and suggest where additional study would be most useful.

The Centers for Disease Control and Prevention (CDC) reported in 2011, that the ASD prevalence in the United States reached 8-9 per 1,000 children. In comparison to its 2007 prevalence count of 1 in 150 children, the statistics clearly indicate the continued rise in diagnosed persons. With increasing numbers of persons diagnosed with ASD annually, there is a need for appropriate educational programming for these children. Programming design should establish clear structure and format that ensures success for these individuals’ distinctive learning styles and requirements. Given such unique functioning levels, the art process provides an alternative offering to achieve tangible goal sets with a structure allowing for individualized progress to thrive.
**Autism Spectrum Disorders**

ASD is a neurological disorder that creates deficits in social interactions, language development, communication skills and, cognitive functioning along with stereotyped and/or restricted patterns of behaviors (Cheon, Frombonne, Grinker, Kim, S., Kim, Y., Kim, Y.J., Koh, Laska, Lee, Leventhal, Lim & Song, 2011). The original description of autism was provided by Leo Kanner (1943) who had established its characteristics as “abnormal development of social reciprocity, abnormal development of language, especially as it is used for communicating with other persons, and desire for sameness, as seen in repetitive rituals or intense circumscribed interests” (p. 21). With focus on two core features, Kanner (1943) defined extreme autistic aloneness, and insistence on sameness. His preliminary definition was the foundation of all subsequent work on autism.

ASD is now understood to be a spectrum of disorders that manifest in related but highly variable ways. A statement of this contemporary understanding of ASD was offered by Tager-Flusberg, Joseph and Folstein (2001):

[ASD is] …a spectrum of conditions united by difficulties in social interaction, pragmatic language, and repetitive behaviors or obsessive interests. The spectrum ranges from children who meet behavioral criteria for autism but have known medical disorders (e.g., tuberous sclerosis), to classic autism (Kanner-type), to cases that nearly meet criteria (PDD-NOS), to children who have normal development of structural language but difficulties with social communication and rigid, stereotyped interests and behaviors (Asperger syndrome) (2001, p. 21).

Table 1 displays the behavioral perspective of autistic disorder as specified from the *Diagnostic and Statistical Manual of Mental Disorders IV* (DSM-IV-TR). The DSM-IV-TR identified hallmark symptoms in the categories of social deficits, language and communication deficits, and provided specific examples of behaviors recognizable to clinicians. With proposed revisions in
the DSM-5 (www.dsm5.org/ProposedRevisions/pages/default.aspx), the classification removed all sub-classifications that existed in the DSM-IV-TR to establish a more all-encompassing classification of ASD (Charman, 2011). These deficits profoundly affect children’s abilities and overall development, and are not ameliorated with time alone (Rao, Beidel, & Murray, 2008).

Table 1

**DSM-IV-TR Criteria for Defining Social and Communication Deficits in Autism**

<table>
<thead>
<tr>
<th>Social Deficits</th>
<th>Language and Communication Deficits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impairments in the use of eye gaze</td>
<td>Delay or absence of spoken language</td>
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<tr>
<td>Impairments in facial expression</td>
<td>Marked impairments in the ability to initiate or sustain conversation with others, idiosyncratic use</td>
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<td>Impairments in body posture and gesture</td>
<td>Lack of varied spontaneous pretend play</td>
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<td>Failure to form peer relationships at appropriate developmental level</td>
<td>Lack of social imitative play at younger developmental stages</td>
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<td>Lack of spontaneous sharing of enjoyment, interests, or achievements with others</td>
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<td>Lack of social-emotional reciprocity</td>
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<td>Impaired response to other people’s emotions</td>
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<tr>
<td>Lack of adapting behavior to different social contexts</td>
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<tr>
<td>Weak integration of social, emotional, and communicative behaviors</td>
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(Disabilities Education Act: Table 53, reproduced on the NCES site)

Frith (1994) similarly identified three primary deficit areas of impairment in the diagnosis of autism: social functioning, language and communication, and repetitive and stereotyped patterns of behavior, interests or activities (APA, 1994). Frith (1994) defined these characteristic symptoms as: (a) severe social impairments, defined as the absence of the ability to engage in reciprocal, two-way interactions, especially with peers; (b) severe verbal and nonverbal communication impairments; and (c) absence of imaginative pursuits, including play, with the
substitution of repetitive behavior. Of these impairments, social interactions and communication insufficiencies are most common. Baron-Cohen, O’Riordan and Stone’s (1999) study reiterated the lack of central coherence in social relationships and central integration of the self. This study used the term “mindblindness” to refer to the inability of the child with ASD to interpret another person’s thinking without being provided a concrete explanation or social cue, resulting in impairments of communication, socialization and imagination.

Children with ASD have difficulties with the pragmatics of language, which Tager-Flusberg (1999) defined as the ability to use language appropriately in social contexts. When a child with ASD engages in communicative interactions, he or she tends to exhibit a lack of listener’s perspective. Tager-Flusberg (1999) described this as a tendency to “lecture about their own interests without regard to their listener’s role in the conversation” (p. 329). Therefore, a primary step in addressing communication with others for those with ASD is protodeclarative communicative gestures (i.e., pointing out objects to others in order to express their needs or wants). This type of gesturing involves joint attention and requires an understanding of intentionality. Children with ASD do not “comment on ongoing or past activity, use language to seek or share attention, provide new information, or express intentions, volition or other mental states” (Tager-Flusberg, 1999, p. 329). Examples of communication deficits include conversational frameworks, expressive language comprehension and storytelling skills. Pragmatics in language also include problems understanding that communication is about intended rather than literal or surface meaning, failure to view conversation as a means of modifying and extending the cognitive environment of a conversation partner, and failure to view narratives as a means for communicating about both events and psychological states (Tager-Flusberg, 1999).

A key deficit issue for individuals with ASD is communication in instrumental and social contexts. Bowlby (1952) emphasized that early development begins with the formation of a
connection or attachment between parents and children that is fundamental for building healthy future relationships with others. The means for establishing attachment in early normal development are largely visual, auditory, and tactile as parents respond to infants’ nonverbal cues such as eye contact and facial expressions to build reciprocal communication. In the case of children with ASD, this type of reciprocal relationship development is impaired by a lack of eye contact and other nonverbal cues, which are major factors in early diagnosis of the disorder (Bowlby, 1952). Without this connection, how do children with ASD make connections or begin communication?

There is no consensus among researchers about whether ASD should be considered one condition, with related causes and different expressions, or a range of conditions with disparate causes. Volker and Lopata (2008) indicated some of the complexities and uncertainties in the contemporary understanding of ASD:

Evidence suggests that autism is a heterogeneous condition with a strong genetic basis. Researchers now believe there may be as many as 15+ genes involved in the disorder (Santangelo & Tsatsanis, 2005), with variation in symptom expression across cases occurring partially as a result of different genetic influences. A considerable debate exists as to whether conditions at the higher functioning end of the autistic spectrum (i.e., high functioning PDD-NOS) are separate disorders or simply different expressions of the same underlying conditions (see Matson, 2007; Mayes & Calhoun, 2004; Volkmar, Lord Baliy, Shultz & Klin, 2004). (p. 258)

According to Volker and Lopata’s (2008) theory, ASD is often associated with other difficulties such as mental retardation, seizures, and co-morbidity with other genetic syndromes. Baron-Cohen, Lombardo, Auyeung, Ashwin, Bhismadev, Chakrabarti and Knickmeyer (2011) suggested that it also affects males at a higher prevalence rate than females.
The rate of ASD incidence appears to be rising. Volker and Lopata (2008) attributed this increased incidence to improved awareness. As they pointed out, the amplified numbers of children with pervasive developmental disorders (PDD), of which ASD is a part, produces an added need to treat children in public school systems:

The prevalence for the broader PDD spectrum (excluding Rett’s disorder and childhood disintegrative disorder) is estimated at 60 cases per 10,000 (Frombonne, 2005a). The number of students served under the IDEA category of Autism has risen sharply from 15,580 in 1992 to 192,643 in 2005 (US Dept. of Education, 2007). This rise results from the escalating awareness of the broader spectrum of conditions to which autism disorder belongs. (p. 258)

The rising statistics have also caused services to be required at an escalating rate in the school systems, as well as the varied levels of ASD that children are presenting (ASD vs. Asperger Syndrome) over the past few years. Volker and Lopata (2008) referred to early diagnosis as enabling more appropriate settings for the child to be placed, where they can better process curriculum topics and necessitate appropriate supports and reinforcements. There are variances between the statistics of ASD versus Asperger Syndrome in reference to awareness and increased treatment in school systems. This is based on the individualized diagnosis of the disorder and early intervention prognosis among these persons.

Researchers have sought additional explanations for the increased incidence of ASD (Cheon, et al., 2011). Some have investigated whether ASD is caused by vaccination for measles, mumps, and rubella or living near industrially polluted areas (Berger, Navar-Boggan & Omer, 2011). No conclusive evidence for these or any other causes has been established to date.

Reflecting the heterogeneity of symptoms in autism, there is considerable variation in neurological findings for children with ASD. Tager-Flusberg, et al. (2001) put neurological studies of ASD in two categories (a) structural brain imaging and (b) functional brain imaging.
They described 15 studies of the cerebellum in people with autism, with special focus on the cerebellar vermis. According to Tager-Flusberg et al. (2001), “studies of cellular abnormalities in the areas of the limbic system, which found decreased neuronal size, increased neuronal packing density, and decreased complexity of dendritic arbors in hippocampus, amygdala, and other limbic structures, [suggest] developmental curtailment in the maturation of the neurons and neuropil” (p. 26). In contrast, Aylward, Minshew and Goldstein, (1999) found that the “amygdala and hippocamal volumes were significantly smaller in the adolescents with autism, suggesting underdevelopment of the neural connections of limbic structures with other parts of the brain, particularly the cerebral cortex” (p.26). These findings are of particular significance because of their parallel to social deficits defining the syndrome of ASD. The connection between these brain regions and social deficits is that the difficulty of concept formation (resultant of the underdevelopment of neural connections of the limbic structures), affects other domains in autism (e.g., memory, self-generation of logical thematic sequences, and imaginative play).

In the area of functional brain imaging studies, Fletcher and colleagues (1995) conducted a PET study on activation patterns in healthy adults when listening to stories requiring physical casual reasoning and mental state reasoning (p. 112). Happe and colleagues (1996) used the same model with five adults with Asperger syndrome (a developmental disorder that affects a person's ability to socialize and communicate effectively with others, resulting in social awkwardness and an all-absorbing interest in specific topics) and found significantly less activation (chemical stimulation) in the region associated with the mental state stories (how they feel, act, think or perceive). Those with Asperger syndrome activated brain regions used for general purpose reasoning rather than those associated with social or mental state reasoning. In another study, Frith and Frith (2000) found that adults with autism or Asperger syndrome failed to activate the same regions as non-autistic adults when given tasks that involve theory of mind-related abilities.
Together, these studies suggested that when people with autism are presented with these kinds of tasks (beliefs, intents, desires, knowledge, etc.), they tend to rely on more general association areas of the brain for processing social stimuli. As neurological studies of individuals with ASD continue, there will hopefully be more information provided about the mechanisms that produce social and other deficits. It is possible that understanding these mechanisms may prove fruitful in creating more effective and targeted treatments to address these deficit areas.

**Current Assessments in Autism**

Comprehensive diagnosis and assessment of ASD include medical, genetic, audiological and psychological assessments. Kleinman, et al. (2008) and Charles, Carpenter, Jenner and Nicholas (2008) concluded that the best data for deciphering suspected autism includes a developmental history, parent interview, medical examination with referrals as needed, child observation, administration of standardized measures of cognitive and adaptive functioning, and direct assessment of social and communication skills. Charles et al. (2008) also elaborated that diagnostic work should include a high resolution chromosome analysis, DNA for Fragile X, MECP2 (females only), lead level, an EEG (if history warrants), Wood light exam to screen for tuberous sclerosis, and a metabolic screen if there has been a history of regression (p. 136). With the increase of the ASD population, examinations have expanded to include newer assessments.

**Art, Science and Creativity**

How does art affect our lives? How we view the world around us? How we interact with objects in daily experiences? In viewing and interacting with art objects, the psychology of art is comprised of neuropsychological (Ramachandran & Hirstein, 1999; Solso, 1994) and perceptual analyses (e.g., Arnheim, 1969). Psychologist Rudolph Arnheim (1969) surveyed the relationship between emotion and cognition through perceptual processes with the art object. Arnheim’s (1969) focus concentrated in; “the relationship between the whole and the part in the art object, the hierarchical associations between parts in the art object, the interaction of different elements
(e.g., light and dark which create active tension in the objects) and the function of space and movement in the artistic symbol” (p.181). Arnheim (1969) placed emphasis on each visual pattern as lively and expressive. Artwork was perceived to have ‘life’ and participated in its own evolution. The major explorations derived from Arnheim’s work developed information on how people relate to artwork and how they experience and interpret art. Arnheim’s analysis of the dynamics of perception and conception actively played a role in the subsequent contribution to understanding embodiment of thinking (Johnson, 2007).

For the child with ASD, how can art enhance lived experiences (experience of daily life living that include daily living skills, interacting with peers and others in a social manner, and/or participating as a member of society) into tangible knowledge of the world in which we live? Johnson (2007) clarified these lived experiences as the “flow of human experience, feeling and thinking in concrete, embodied forms” (p. 236). While a work of art is not an actual organism, it can still feature lively characteristics showing its growth and harmony. Bruner (1979, 1990) supported this rationale of connecting to the greater world by establishing that “art is part of a broader human impulse to make meaning out of our social and material world” (p. 3). Grounded on the idea that experience is based on a course toward life that is lived and felt in all its fundamentals, rather than described through theoretical abstraction and universalizing reports (Shusterman, 2006), art expresses openness, consistency of life, and gives wholeness to its experience. Benson (2001) theorized that the experience of art occurs when the viewer undergoes a pleasing development of the self through their interaction with the artwork. The opposition of form and content create a gratifying synthesis in event, generating catharsis in the transformation of the experience. This psychology of art is largely concerned with the reciprocity between the self, emotion, and culture in shaping cognition and lived experience (Dewey, 1934). In the area of understanding the child with ASD, Sullivan & McCarthy (2009) suggested study of how different art media can form diverse outcome manifestations, and that
these may affect cognitive functioning and social cognition. For example, if a child on the spectrum is provided with a set of watercolor paints and white paper with a free art directive (the use of paints reinforces fluidity of motion therefore enhancing a relaxed state of tonus), they may or may not create a pre-planned form (container) with the paint materials but perhaps explore initially the sensation of the art materials and visual experience of what is being created on the paper. In this example, given without a concrete task directive, there are potential moments of cognizance that may occur from paint to paper (e.g., awareness of environment, awareness of interactions, understanding of simple elements of art, etc.). In this example, the art making process could assist the child with ASD to connect with the environment and/or the people they engage with through the use of art materials.

*Art Therapy and Neurofunctioning*

Children with ASD exhibit sensory processing issues; specifically, information is often registered, interpreted and processed differently by the brain. The result of these sensory motor issues could be seen in unusual ways of responding or behaving and essentially difficulty in planning and organizing. Children on the spectrum may also show problems with doing everyday tasks (self care, work, leisure activities), and for some with extreme sensitivity, sensory input may result in extreme avoidance of activities, agitation, distress, fear or confusion.

Lusebrink (2004) studied the link between art therapy and the neurological facets of the brain. Her work concluded that the sensory-based components of the art making process activate emotional states in the brain when participating in the creation of art. Through this activation, cognitive and symbolic aspects of memories can be utilized for interpretation. Additionally, Lusebrink (2010) suggested that based on this information, art assessments would benefit from further exploration of the relationship between the processes of art expression and the functions of the brain. It might then be interpreted that the child with ASD may create more grounded associations to people and objects through art making and its benefits to neurofunctioning.
In art therapy, somatosensory information processing is important because these sensory modalities of touch and haptic senses are valuable in the art making process (Lusebrink, 2004). According to Gibson (1966), these areas activate the cutaneous senses (pressure, vibration, cooling, heating) and kinesthetic senses (perception of shape, weight, rigidity of objects). Found in the same sector, texture and manipulation of objects originate from this area. Lusebrink (2004) clarified “textures are experienced through movement of skin over a surface that create a vibration on the skin… the manipulation of an object creates kinesthetic sensations from joints and muscles” (p. 127). In the art making process, sensory-based experiences may draw out emotional responses for the child with ASD through the interaction of process and art materials. Based on this theory of art therapy, specific focus on imagery and expression may reflect emotional experiences that then affect thoughts and behaviors.

In the sensory modality of touch, actions of sensory stimulation, exploration, and general play with art can aid progress in cognitive and developmental areas. Tactile media can allow individuals with developmental delays exciting avenues for self-expression and self-actualization. Kahn-Dennis (1997) supported the use of various tactile materials (e.g., water, sand, seeds, finger-paints, paste) to stimulate sensory and motor systems. These types of media also stimulate emotional responses from the haptic senses providing feedback about form and spatial relations. One of the most integral parts of the creative act, Lusebrink (1990) concluded, is “the excitement and pleasure of involvement, which in itself can be healing” (p. 131).

The neurological perspective of art supports the importance of visual perception with the child with ASD. Kaplan (2000) stated visual art relies heavily on vision, the ‘power to facilitate creativity coming in’ (p. 64). Physicist researcher Harth (1993) developed a neural model of visual perception, and proposed a mechanism in which mental images might activate the same neural pathways as images from the external world. Kaplan (2000) cited this phenomenon as the reasoning behind why individuals respond to images in their minds as actually seen, and
proposed a *creative loop*. The *creative loop* refers to the point at which the individual learns to objectify internal visions and use raw materials for art, so that the creative and creation becomes available. Extending on this thought of visual response through images, Temple Grandin is a Professor of Animal Science but also a person with ASD. Grandin (1995) described her own visual processing as a means of concretizing events, concepts, and philosophical considerations (a common characteristic of persons with ASD). Last, Grandin (1995) described her visual memory as the ability to ‘think in pictures’ which essentially linked her to other people, and thus, understanding of the world around her (via images, forms, and visual relationships). Kaplan (2000) commented on a link between neuroscience and visual perception. She stated, “Neuroscience can help us understand the reality-based impact of mental imagery” (p. 32). The conclusion based on both Grandin (1995) and Kaplan (2000) suggests there is a strong connection between the human brain and visual relationships. Specifically, by utilizing visual representation of symbols and ideas, the brain can more prudently decode and process information.

Focusing on children with ASD, mental imagery enables them to decode the world around them including relationships into more concrete forms. Kellman (2001) referred to these forms as “bright shapes.” Artists with ASD “allow clearer views of shared human abilities in their culturally less obscured view of things” (p. 35). These *bright shapes* referred to outlines and linear constructs, human hands, faces, motions and postures, landscapes, the structural form, color, depth, and stereoscopic information. Kellman (2001) described many of the significant characteristics of images created by outlines and engagement with structure. She surmised, “We have begun to see how our visual processes, a significant portion of our cognitive abilities, and the substance of our memories are also a part of how we humans think, and that for some people, like Grandin, visual imagery is a dominant aspect of cognition” (Kellman, 2001, p. 35). In
addition, the connection of art to the cognitive processes creates a personal narrative or sense of significance, the portrayal of life in one’s world.

For the artist with ASD, there have been multiple benefits of the art making experience linking it to science. Kaplan (2000) theorized two general categories, art as life enhancement and art as rehabilitation. Out of those categories, there were four main points Kaplan (2000, p.75) summarized directly affecting the child with ASD participating in art. The first point suggested that art promotes mind-brain development. With the encouragement that all children should be given abundant opportunities for art making throughout their developmental years, Kaplan (2000) suggested that perceptual discrimination and language acquisition are facilitated and self-esteem is enhanced as a result. The second point established that creating visual art provides one of the few opportunities for successful functioning for those with certain cognitive impairments. In perspective of the child with autism, it can be suggested that the deficits in cognition and communication may even prove advantageous due to its deeper impact on raw experience through visceral (visual, auditory and tactile) practice. The third point supported that the visual thinking involved in art making indicates that art offers a non-verbal approach to assessing cognitive development and deficits (also that art can provide an alternate form of communication for the language impaired). And lastly, art is among those activities that can improve the quality of life for all who undertake them. When the art making experience is fluid, it can provide an optimal experience that produces feelings of psychological growth and supports a positive outlook on the individual’s life as a whole (relationships, experiences, etc.).

**Addressing Deficit Areas**

The large number of children diagnosed with ASD makes it clear that effective treatment and interventions are imperative (Odom, et al., 2010). Specialized therapeutic programming to address deficits in the areas of socialization, communication, and cognitive functioning is greatly needed (Volker & Lopata, 2008).
The first goal area of socialization, children with ASD lack the social reciprocity needed to engage in appropriate social interactions. That is not to say that they do not have some interational skills or exhibit complete avoidance of others. Tager-Flusberg (1999) explained why children with ASD have a high need for routine and predictability. Their research specified “routines and structure reduce the complexity and unpredictability of the social world, which may be especially important for children who do not understand the mentalistic reasons for other people’s actions” (p. 328). With familiar persons, the child with ASD can communicate by learning that person’s foreseeable behaviors and responses. This type of patterning reinforces the rigid behavior that many children with ASD display in regard to their social conduct. One of the typical social behaviors in children with ASD is reciprocal conversation with echolalic responses and short attention span.

Throughout the research on social skills development, highly structured activities in academic or social settings have been found to increase and promote the productivity of social behaviors (Bellini, Peters, Brenner & Hopf, 2007). Structured activities can enable and guide appropriate social interactions between individuals with ASD. Tager-Flusberg (1999) stated, “Individuals with autism fail to appreciate that friendship goes beyond mere acquaintance or social contact; that it encompasses a deeper connection based on sharing experiences, thoughts and feelings, and involves a caring and commitment that requires a mentalistic view of the other person” (p. 329). Providing an organized format can benefit children with ASD to foster appropriate social and independent functioning. Rao et al. (2008) added, “Furthermore, children with ASD do not simply ‘outgrow’ these social skills deficits, rather these difficulties persist into adulthood, where they continue to negatively impact social and occupational functioning” (p. 354).

The deficits in social skills among students with ASD have prompted studies in interventions with peers and others. Bellini, et al. (2007) performed a meta-analysis in this area.
They focused on three major components of social skills interventions: (1) to provide a quantitative amalgamation of existing single-subject research studies on school-based social skills interventions for children with ASD; (2) to examine the aggregated outcomes; identify participant, setting, and procedural features that lead to most effective intervention outcomes; and (3) to compare the intervention, maintenance, and generalization effects to the outcome of similar studies involving social skills with other populations of children (2007). The authors set eight criteria of studies for inclusion that are displayed in Table 2.

Table 2


<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
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<tbody>
<tr>
<td>1</td>
<td>ASD identification</td>
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<tr>
<td>2</td>
<td>Outcome measures that target social functioning</td>
</tr>
<tr>
<td>3</td>
<td>Study must have accessed efficacy of social skills interventions</td>
</tr>
<tr>
<td>4</td>
<td>Social skills interventions that were implemented in a school setting</td>
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<tr>
<td>5</td>
<td>Single-subject research design</td>
</tr>
<tr>
<td>6</td>
<td>Inclusion of dichotomous dependent variable with at least 3 probes or questions</td>
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<tr>
<td>7</td>
<td>Present data in a graphical display that depicts individual data points in comparison to the aggregated data</td>
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<tr>
<td>8</td>
<td>Must be published in the English language</td>
</tr>
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Results of the Bellini, et al., (2007) study showed that school-based social skills interventions were minimally effective for children with ASD. The results exclusively revealed: social skills interventions had low treatment effects and low generalization effects across participants, settings, and play stimuli; gains made through the social skills interventions were maintained after the interventions were withdrawn; and, similar intervention, maintenance and generalization effects were observed between interventions targeting collateral skills (e.g., play skills, joint attention, and language skills) and specific social behaviors (e.g., social initiations, social responses, and duration of interaction) (p. 159). There were no significant differences between the intervention and maintenance effects of studies that implemented group interventions compared to individual interventions. Bellini, et al. (2007) concluded, “studies
implemented in the child’s typical classroom setting produced significantly higher intervention, maintenance, and generalization effects than intervention that involved removing the child from the classroom” (p. 160).

Chan, Fung, Tong and Thompson (2005) set out to investigate whether or not multisensory therapy (also known as Snoezelen, therapy developed to meet the special needs of people diagnosed with developmental disabilities) would assist persons with developmental disabilities to increase psychological well-being and decrease behavioral problems. This therapy included “visual, auditory, tactile and olfactory stimulation offered to clients in a specially designed room, or therapy using a variety of lights, gently stimulating music, aromas and tactile objects (non-sequential and unpatterned stimuli used without reliance on short-term memory to link them to previous events), and which present few specific intellectual demands on the client” (p. 132). Chan et al. (2005) hypothesized that providing an environmental escape might help the client engage in relaxation and positive coping mechanisms. Using a rigorous experimental design, the results of their study indicated that there was no evidence that multisensory therapy was superior to activity therapy in reducing aggressive behaviors and stereotypic self-stimulating behaviors. The key variables that showed improvement from multisensory therapy included the positive relationship with the caregiver, consistent environment, relaxation and freedom from demands rather than sensory input (Chan, et al., 2005). Although this study did not support its original hypothesis, it showed that this type of therapy could promote relaxation and positive emotional regulation.

The second goal area of communication skills development is to increase the child’s desire to communicate verbally and non-verbally. Jan Osborne (2003) reflected that the child with autism has a lack of communication intent and does not see the necessity or value of communication. Osborne (2003) concluded, “It is this drive [communication] that needs to be stimulated before the other aspects of communication can be developed” (p. 418). Professionals
who work with children with ASD are aware of the need for alternative communication (e.g., non-verbal or visual assistance). Rao, Beidel and Murray (2008) defined social skills as “specific behaviors that result in positive social interactions (Elliott & Gresham, 1987; Gresham, 1986) and encompass both verbal and non-verbal behaviors necessary for effective interpersonal communication” (p. 353). For the child with ASD, social skills deficits include indirect or lack of eye contact and limited verbal and gesture communication in typical social settings. Social skills deficits may include, but are not limited to, relationships (with family, peers and others) and are related to poor task attention that affects academic development (Rao, et.al, 2008).

In the third area of cognitive functioning goal area, Humphrey and Parkinson (2006) discussed methodological concerns and limitations of previous approaches to ASD research, pointing out that many studies use IQ as a primary measurement of treatment efficacy, and few studies measure outcomes using individuals who are blind to the treatment status of the participants and independent of the research team. The preceding review of treatment-related research demonstrated that additional research on treatment approaches for individuals with ASD is needed. Humphrey and Parkinson argued that individualized approaches to intervention are necessary (2006). Under this paradigm, individual needs and levels of capabilities can be better addressed, thus promoting a more successful outcome of results (meeting goals and objectives). In addition they called for “detailed, systematic, collaborative inquiries which examine how approaches can be developed, combined, modified and implemented in the complex array of education settings, contexts and circumstances in which children and young people with ASD find themselves (Shreibman, 2000; Schoen, 2003) through examination of individualized approaches” (p. 82). The goal was to produce high-quality research that will help therapeutic and educational professionals working with individuals with ASD to develop and execute more informed practices that focused on the achievement of each child’s full potential.
Methodologies that include an art education or art therapy component, such as Daily Life Therapy (Kitahara, 1964) and Treatment and Education of Autistic Communication related Handicapped Children (TEACCH; Schopler, Mesibov & Hearsey, 1995), have been introduced in private and public school settings to assist appropriate educational goals and objectives for these children. These types of pedagogies allow the child with ASD to learn and process on an individualized basis and level of developmental capability, while recognizing that persons with ASD are unique individuals with distinctive processes of functioning. Educational institutions like the Yonkers Public Schools in New York has shown a push towards alternative approaches implementing a TEACCH based program that offers art therapy as a an alternative service for students on the spectrum (Yonkers Public Schools Department of Special Education, 2003).

**Art Education, Art Therapy and ASD**

*Art Education*

Art education is characterized by adult direction in the administration of technical training and skill acquisition. Sound planning best supports good teaching in art, which provides for the progressive acquisition and reinforcement of skills. Teachers need to have a clear idea of what constitutes good standards in art and to have high expectations of their pupils; these should be communicated by direct instruction, through discussion and through the display of art in school (Clement, Piotrowski, 1998, p.4). In the United States, each state institutes its educational standards on special criteria of excellence and completion. Massachusetts has five categories of Pre-Kindergarten through grade 12 Learning Standards for the Visual Arts (Massachusetts Arts Curriculum Framework, 1999). They are: (1) Methods, Materials, and Techniques (students will demonstrate knowledge of the methods, materials and techniques to the visual arts), (2) Elements and Principles of Design (students will demonstrate knowledge of the elements and principles of design), (3) Observation, Abstraction, Invention, and Expression (students will demonstrate their
powers of observation, abstraction, invention, and expression in a variety of media, materials, and techniques), (4) Drafting, Revising, and Exhibiting (students will demonstrate knowledge of the processes of creating and exhibiting their own artwork: drafts, critique, self-assessment, refinement, and exhibit preparation), and, (5) Critical Response (students will describe and analyze their own work and the work of others using appropriate visual arts vocabulary, when appropriate students will connect their analysis to interpretation and evaluation).

Potential Benefits. Offering art education for children with ASD assists them in developing increases in the aforementioned deficit areas of cognitive functioning (conceptual thinking), socialization skills (peer relations, appropriate interactions with others) and communication interactions (requesting needs and wants effectively, expressing opinion/self-concept). More specifically, the engineered format of the visual experience a child has during the art making process provides the multi-sensory experience; thus, engaging the student with ASD to touch, smell and hear the visceral quality of his or her materials further enhancing his or her manifestations of technical art skill and information processing. Art teachers provide creative instruction that may include math and sciences (Baron-Cohen, Wheelwright, Burtenshaw & Hobson, 2007). Art education may also enhance self-confidence and self-esteem while allowing connections to be made through the materials as an alternative structure of engagement (response and reflection) with the world and society that the child lives in (Kaplan, 2000). Clement, et al., (1998) theorized that successful administration of art education also focuses on how the art teacher encourages the student’s freedom of expression, positive experiences and supportive responses of outcomes. The student with ASD is able to comprehend the subject matter and participate appropriately and independently (Yonkers Public Schools Department of Special Education Manuel, 2003). The integration of the arts into core curriculum planning enables students to assimilate and retain what they are learning, while they engage in
Schlein, Rynders and Mustonen (1988) investigated whether participation in inclusive art activities would have a positive influence on social interactions between students with autism and their nondisabled peers. Their findings revealed that the use of inclusive art classes as a vehicle for promoting social interactions had positive results. Schlein, Rynders and Mustonen concluded, “Modification of art education activities to encourage cooperation within small groups of children of varying abilities, combined with the provision of information and training for nondisabled students, found to have a positive influence on the nondisabled children’s initiated social interactions. The researchers suggested that art education specifically benefits the child with ASD with six areas of improvement. They are, (1) development of cognitive and verbal skills, (2) development of skills in manipulating art materials and opportunities to practice these skills, (3) concurrent participation in easily adapted and flexible activities by persons with varying ability levels, (4) opportunities for integration and social participation with peers, (5) exposure to high quality works of art and opportunities for personal expression through art activities, and (6) improved self-concept through opportunities to succeed in activities that do not have regimented patterns of right and wrong. Supporting the role of art in developing and evaluating cognitive skills functioning, Silver and Lavin (1977) performed a research project examining whether or not art procedures would be useful for children who exhibited poor groupings of cognitive skills (e.g., verbal strength, visual-motor weakness). Their study tested 15 children classified with learning disabilities (including ASD) in New York who had structured art instruction by 11 graduate students who were concentrating on the children’s cognitive deficits (language and hearing impairments), and resulted in significant improvements in participants (Silver, 1973, 1975). The results supported increases in cognitive development when using art procedures in a structured format for assessment and evaluation. Further, the
format of art experiences had also successfully improved visual-motor weaknesses in the children.

*Current research in art education.* Recent examination of art education for the child with ASD revealed minimal research in this specialized subject area. A dissertation study by Corrie Burdick (2011), explored adolescent students with ASD in Art Education. Her study specifically concentrated on the inclusion classroom aspect of education for children on the spectrum. The study focused on three central categories; art and art making, autism and perceptions surrounding the ASD label, and access in and to art education for this population. Using a combined qualitative method (informed research and critical descriptive ethnographic methodology), Burdick (2011) aimed to explore the experiences of 13 adolescent artists with autism as they participated in a variety of art education settings (e.g., formal settings experienced in schools and community art settings). The artworks that were collected included participant observation, inclusion of informal interviews playing important roles in the participant artists’ lives, arts-informed narrative and interpretation. Collage was the primary art form used for this arts-informed research. The findings were that art education for the artist with autism was beneficial, but the perceptions of art educators who participated were that training and teacher preparatory programming for working with students with ASD were lacking.

*Art Therapy*

Art therapy is a master’s level profession that works with clients through their creative processes by exploring feelings, reconciling emotional conflicts, fostering self-awareness, managing behaviors, developing social skills, improving reality orientation, reducing anxiety and increasing self-esteem (Art Therapy Credentials Board, 2011). Evans and Dubowski (1988) held the view that for the child with ASD, art therapy is an effective treatment option because it addresses the individual’s process and needs (developmental levels, social and cognitive impairments). Art therapy also provides client interventions in a supportive and non-threatening
environment, where the child can explore and build ego development and emotional regulation (Dubowski, 1984). According to Janet Bush (1997), the art therapist may also serve as a client liaison in programming, family dynamics and treatment planning, while establishing fundamental art skills in a balanced experience; furthermore, art therapy may also function as the primary or complimentary approach to other psychotherapeutic offerings.

**Benefits.** Art therapy may provide a means for treatment regardless of functioning levels (e.g., cognitive ability and/or expressive/cognitive skills development) because of its focus on nonverbal expression. Evans and Dubowski (2001) wrote that art therapy could provide client interventions in a supportive and non-threatening environment, where the child with ASD can explore and build ego development and emotional regulation. Evans and Dubowski (2001) also suggested that art therapy interventions cover a gambit of treatment approaches, including reciprocal cueing, protoconversation, attention and sensitivity, rhythm and body language as interactive art therapy models (techniques used through therapeutic art services). Reciprocal cueing enables the therapist and individual to take prompts from each other (social or communicative) and develop interactions and process-oriented developments from each other (Evans and Dubowski, 2001). Protoconversation is the interaction between an adult (typically a mother) and infant, which include words, sounds and gestures, that attempt to convey meaning before the onset of language in the child. Interactive art therapy models are thought to promote successful participation and task attention to the task at hand. By providing the child with ASD these techniques, the child can create structured organization to enhance their learning environment (Evans and Dubowski, 2001). Art therapists in turn, may catch glimpses into the expressive world of the client while gaining clearer perceptions of their functionality and emotional development.

**Current Studies in Art Therapy for the child with ASD.** Few studies have directly addressed autism and art therapy. Some researchers have suggested theoretical explanations for
why art therapy may be useful for children with ASD (Emery, 2004; Dubowski, 1984; Osborne, 2003; Evans & Dubowski, 2001; Osborne, 2003). Others have provided case histories of art therapy helping children with ASD using drawing as a primary intervention (Kornreich & Schimmel, 1991; Henley, 2000; Betts, 2003; Martin, 2008). The results of these studies are suggestive but not conclusive.

Given that children’s art can be accessed as an expression of their schematic stage development, the shapes found in children’s drawings have shown a clear correlation to tangible objects in their surroundings (Emery, 2004). The link of these shapes within drawings, can lead to the individual’s inner workings of cognitive and emotional development. Drawing capacity comes in various levels of ability and ‘artistic’ perspective. By offering a free art directive, children with lower developmental levels are able to participate without feelings of anxiety over performance and judgment. Drawing development for the child on the autism spectrum sometimes appears latent or is observed to be stagnant at one specific level (e.g., scribble stage at the age of 10 years).

The shapes found in children’s drawings may have a clear correlation to tangible objects (Emery, 2004). Although not all drawings are intentional or representational, this research suggested that the imagery could be directly experienced from children’s surrounding environments or interactions they have participated in. Children with ASD display a unique perception of imagery in drawing through art therapy. For some children, it is a response to their experiences/coping mechanisms (Emery, 2004). And for others, it is the symbolic representation of exactly what they are “seeing” and experiencing in that moment. The purposeful motive of these given shapes within drawings can illuminate the individual’s inner workings of cognitive and emotional development. Horovitz, Lewis and Luca (1967) explained, “the schemata are repeated in much the same way as words are used. In this sense they are signs. Thus, in schematic representation, the same shapes repeated constantly come to express entire complexes
of ideas” (p. 7). By organizing ideas through the use of object constancy, the art therapist is able to access the child’s relationship to important objects through their drawings (Emery, 2004). Children often create art and draw to relate to their outer world, yet, children with ASD are deficient in this relation (Horowitz, et al., 1967) that may be enhanced through art therapy.

Janek Dubowski (1984) formulated a model of developmental art therapy that enables clients with communication or learning disabilities to exchange ideas with others using iconic images that parallel language development. This model focuses on the use of intercommunication (communication with others) and intracommunication (internally connecting to make sense of the world). The varied levels of language development among children with ASD suggest that the use of symbols and images could enhance their ability to communicate and to comprehend the world around them. Dubowski explained:

Many forms of developmental delay and autism, as well as trauma and psychiatric problems with children, often prohibit or slow down normal development resulting in individuals who have not achieved the separation (from the primary caregiver necessary for individuation-the development of a more or less autonomous self) and live in a world of confusing objects in which they cannot find a place for themselves.

By helping these children to develop their drawing skills towards the representational stage and beyond offers those individuals the opportunity to develop towards a sense of self. Art therapy is therefore an appropriate and valid treatment in these areas. (2001, p. 57)

Establishing the language and communication benefits of the art making process further supports the need for added art programming (art education and art therapy) in educational settings. Successful outcome effects acknowledge these developmental delays and language deficits, therefore proving that the alternative offering of art may positively benefit persons on the spectrum.
Kornreich and Schimmel (1991) used a case study method to examine art therapy with Bobby, an 11-year old boy with autism. Their goal was to increase his desire for emotional regulation skills. They explored Bobby’s social and emotional growth in relation to his development of social contacts, specifically his mother and father. During the study, Bobby’s drawings showed emotional and intellectual growth. His character figures represented those around him and his levels of interactions with them. Drawings reflected his increasing awareness of emotions, environmental factors, gender, actions, habits of family members, and increasing self-awareness within his own drawings. At the conclusion of Bobby’s art therapy services (2 years of weekly individual art therapy sessions), he had significantly decreased agitation and anger. Results were measured with a 20-month series of art making.

A study by art therapist David Henley (2000) honed in on idiomatic expression as a stimulus for children in the latency stages of development. Using the *group dynamic approach* (therapeutic technique that studies the psychodynamics of interaction in social groups), Henley surmised that idiomatic expression served as a powerful stimulus for self-expression. Through a process of *open-ended structure*, memories, sensitive issues, and feelings were stimulated and shared. The art forms allowed structure for the child with ASD, thus providing avenues of self-expression for interaction and language exchanges. Henley (2000) concluded “the idiom is a gift to our clients - one that may be declined by the fragile or resistant client or accepted and utilized, sometimes with remarkable efficacy” (p. 275).

The work of Evans and Dubowski (2001) showed that art therapy aided children with ASD by providing meaningful experiences, increasing their ability to form connections through association, and enhancing their communication and language acquisition skills. Emery (2004) recommended that art also supports a non-threatening environment for children, which aids in ego development and emotional regulation. Evans and Dubowski (2001) argued that symbolic imagery creates a link to cognitive functioning and plays an integral role in the developmental
The development of expressive language and drawing begins at 15 months. Evans & Dubowski (2001) reported, “The onset of drawing and language indicates a major shift in the child’s development – a point when there is a need for a more sophisticated ‘means’ by which it is possible to express their experience and thoughts, and communicate these ‘explicitly’ to others” (p. 32). Through the drawing process, many children begin to explore mark making on paper as a means of communicating and expressing their ideas. It was suggested by Viktor Lowenfeld (1987) that signs of the pre-marking stages begin to manifest around the age of 2 years, which can also been seen with the child on the spectrum (Evans & Dubowski, 2001). The drawing development of children with ASD varies greatly among persons on the spectrum. Although some individuals may show significant feats displayed as gifted abilities, many do not develop their skill set until after 2 years.

Jan Osborne (2003) compared art therapy approaches. She defined art therapy as focusing on reaching emotions through the art process, identifying feelings of self and others, ego development, and accomplishment through self-knowledge. Osborne (2003) concluded that children with autism need to “have access to skill acquisition, high standards and a sense of identity, accomplishment and self-knowledge” (p. 412). Also, in Osborne’s opinion art activities enhance functional skills, along with creativity, aesthetic appreciation, sense of self, spirituality, organization of thought processes and cognitive functioning skills.

Osborne (2003) also addressed issues related to the dual role that art therapists have in school systems. The art therapist needs to focus not only on treatment planning but also on establishing a solid foundation of educational awareness with the school staff members (classroom teacher, teacher assistants, psychologist, etc.). These relationships solidify the team effort that goes into the collaborative training of an autistic student. Osborne (2003) surmised: Providing the necessary conditions where learning can most deeply and intimately begin, or in other words forming common ground where teacher and pupil can meet, it is
suggested, is the fundamental goal of education and of treatment of the child with autism.

There is some evidence that art therapy can be particularly useful in doing this. (p. 422)

Current research on the use of art therapy assessments for the child with ASD has recently shown significant developments. Tools such as the Face Stimulus Assessment (Betts, 2003, 2009) and the Portrait Drawing Assessment (Martin, 2008) have been utilized for children with ASD to provide insight into their skills and interests for more appropriate treatment goal planning. Martin and Betts (2010) suggested by, “using a combination of formal and assessment, the art therapist determines the clients’ capacity for imagination and socialization, artistic developmental level, the impact of different art materials on the client’s senses and behavior, and the client’s initial interests and personality before developing appropriate treatment goals” (p. 50).

Betts (2003) developed the projective drawing test, Face Stimulus Assessment (FSA), to “develop a specific method of evaluating my nonverbal clients who had cognitive impairments, as these individuals were unable to follow directions and were not motivated to draw without a visual stimulus” (p.77). Betts (2003) found that stimulus drawing enabled “clients with autism, communication difficulties to project their own ideas into the picture, or at least motivated to add scribbles of color to the page” (p. 78). The FSA seemed to provide information about these clients and their abilities to the researcher. Betts (2003) established the basis for choosing the face as a stimulus, “The face is the chief bodily region associated with expression of emotions and individual identity. It can reflect intentions and attitudes, it plays a critical role in aesthetic judgments, and it provides information about gender and age (p. 78). The FSA is comprised of three pictures (1 initial face stimulus, 1 stimulus with only the outline of the face and 1 blank page). The purpose of using three images was hypothesized to provide “two consecutive opportunities to organize facial elements as well as to demonstrate memory and visual retention capacity” (p.79). The specific art materials include a standard packet of eight Crayola markers,
packet of eight Crayola multicultural markers, and Stimulus Pictures 1-3 (each on one separate sheet of 8-1/2” x 11” white Xerox Paper depicting the aforementioned images). Betts (2003) concluded the benefits of using the FSA as research tool due to its consistent content, the ability to perform the assessment without an assessor observing the actual drawing process, that it may be used with clients who are verbal or nonverbal, and that stimulus pictures are generally nonthreatening to its client.

Martin (2008) focused on assessing portrait drawings among children and adolescents with ASD. Martin (2008) developed the *Portrait Drawing Assessment* (PDA) to search for trends in data of children’s art, while also exploring a more comprehensive perspective on children with ASD. Working from the idea that most children have increased visual strength, she found that children with ASD often display a strong visual orientation and exhibit a high level of need for sensory input. Her study focused on face recognition because of the prevailing belief that children with ASD do not receive emotional or social information from facial encounters. Martin’s study was “designed to collect data to learn how these children differentiate and attend to faces to assess whether or not iconic thinking could be found in their drawings” (2008, p. 17). Martin reported the relationship between the art therapist and child with ASD displayed an increase in social interactions and communicative responses, including improved eye contact and the client’s added ability to identify the therapist by facial recognition.

**Daily Life Therapy and the Boston Higashi School**

With new interest in art education and art therapy for the child with autism, many educational programs have begun to include art as a primary subject area for children with ASD. The Boston Higashi School (BHS) located in Randolph, Massachusetts is one of the current programs available in the private sector in the New England region.
Conceptual Framework/Methodology.

The Boston Higashi School follows the Daily Life Therapy (Kitahara, 1964) methodology for educational programming. The Daily Life Therapy (DLT) conceptual framework conforms to the rules of instinctual development natural to children. Their concept stipulates that even though children with ASD have developmentally appropriate instincts, their ability to manifest them externally is extremely weak (Kitahara, 1964). One of the characteristics that differentiate DLT from other methods is its perspective of teamwork in the learning environment. BHS supports learning on an individualized approach, yet encourages socialization skills building through teamwork exercises throughout the instructional day. Staff respondents universally supported the importance of pushing their students to experience multiple situations that engage them with peers, staff and the world in which they live to connect them as participants rather than simple observers.

The mission of DLT is founded upon four tenets. The first is to aim at the social independence of the child with ASD through persistent training in areas of deficiency to build up and strengthen the child’s abilities to overcome the barriers that impede them. The second is to provide a systemized and detailed educational curriculum that combines the daily life of each child, their psychological age, degree of their ASD, type of autism, etc. The third area provides experiential learning to fill in the developmental gap between the child and his or her “typically developed” peers. The last area focuses on providing consistent guidance at both school and home environments so the individuality of the child will be considered in all of their experiences.

Within the DLT methodology, priorities rely heavily on coping mechanisms to assist in life’s experiences. More specifically, DLT supports the building of physical strength, stabilizing of emotions and adapting to society through appropriate social functioning (Kitahara, 1964). Through this adaptation of life skills, the Boston Higashi School provides diligent guidance of students, persevering and repeating skills for cognitive retention (BHS Manual, 2008-2009).
the lesson is typically taught to a “normal” child three times, the child with ASD requires anywhere from 30 or more exposures to establish the skill, retain and repeat the function appropriately and independently. Taking this belief as a major element of their program, BHS highly encourages patience in their work with children on the spectrum. BHS promotes the individual to thrive at his or her own pace through repetitious practice of activities. If the student requires more or less repetitious lessons, the staff is diligent to keep abreast of the current needs of their students. For example, prompt levels are designed to assist the student with necessary prompts that support them to participate and complete task assignments, while also providing positive supports to maintain grounded affects to ensure optimal learning experiences. Reiterating the individual nature of the program, these prompt levels are adapted as the student progresses.

Importance in obtaining a deep understanding of the individuality of the child is essential in fostering successful acquisition of skills and development. Growth progresses through the 24 hours of each day beginning from morning through bedtime (Kitahara, 1983). Kitahara (1964) posed that even with the most simplistic of routine activities, such as brushing teeth, the priority is to assess the child and to help him or her overcome his or her disability using his or her own strengths so he or she may function more independently in society. The BHS staff supports students through the entire day. For example, upon arrival of the school, the staff assigned to the particular class not only facilitates the lessons, but also eats and exercises with the children. More specifically, staff eat all meals (breakfast, lunch and snack) with the students, and engage in the physical activities (running and daily exercise warm-ups during the morning and afternoon sessions). This type of support is aimed to motivate and encourage the child with ASD to participate in all areas of learning, while also establishing a bond with the staff. This bond is another essential factor of the BHS practice to further support the child with ASD as a functioning individual as well as a social participant.
Another essential factor of the BHS program is the encouragement of physical structure within their educational programming. This physical structure is consistent with all classes (academics and subject areas including art, music and physical education) for each student. The process of the physical structure directs the students to line up outside of the classroom in an orderly fashion, with mouths closed and hands down to their sides. Under the consistent philosophy of teamwork, all students must follow the same routine or they cannot proceed into the classroom. Once all students are ready and in appropriate posture (quiet, standing with hands down at their sides), they follow in a line into the classroom where they follow another physical routine of sitting in their designated seats, feet down, hands down on their lap and mouth is quiet. Again, each student must follow the rigid physical structure to proceed to the next step of instruction. Kitahara (1983) supported, “a person in a group situation finds the courage to do what he would not have the courage to do by himself” (p. 16). She posits that if the child with ASD is educated in a small group from the beginning, they become more tolerant of group dynamics (a trait typically seen as a deficit in social skills). The child can also build appropriate coping mechanisms to support them to thrive in the learning environment.

_Art as a Vehicle for Instruction._

There are five DLT art education goals at the Boston Higashi School. They are: (1) to improve assigned skills through repetitious practice; (2) to perform sets of skills by memorizing task; (3) to have awareness of other people and their lives/surroundings; (4) to find pleasure in art; and (5) to perform art with appropriate behaviors (BHS Art Division Yearly Educational Planning, 2009-2010). These goals were designed to follow a structured art format in which the art lessons were planned, facilitated and administered in an organized configuration. BHS focused on seven areas of skill along with underlying objectives to support targeted skills building; readiness, drawing, coloring, cutting, gluing, art projects (e.g., collage, murals, etc.) and ceramics. These include the management of behavior through the educational method.
enabling the individual to build physical strengths, establish emotions and express hidden capabilities that allow each individual’s potential for social independence and dignity to emerge (BHS Art Division Yearly Educational Planning, 2009-2010). Given these specific art goals and objectives, BHS follows a structured learning format to administer art lessons plans promoting success in the aforementioned areas. Through exclusive techniques of a structured learning format, DLT follows six steps of teaching procedures (Kitahara, 1983). The first step is Initial Stage Guidance, a systemized guidance in the matters of daily life, divided into stages to enable an easy transition from the transitions of being away form home with the initial entry into a group of children on the spectrum. The second step is Group Dynamics and Imitation, where the child begins to function in group formation. Examples of this step include responding when called by name, reinforcing communication with the teacher, making habitual the basic acts of daily life to foster self-reliance and to engage appropriately in play and work. The third step Environment of Normality, posits following an ordered daily life, participating in school events and holiday celebrations, becoming aware of links with family and continuing the routine of self-reliance in personal life. The fourth step is Attending Behavior, maintaining a present attitude that fosters motivation and participation in tasks and activities. The fifth step is Bonding between child and staff members, ensuring that respect and positive interactions are consistently maintained between the child and their peers/staff members. And the sixth step is Consistent and definitive expectations, establishing clear and high standards of their students to promote clear understanding of what is expected of them by their teachers and staff members. These teaching procedures were designed to establish assistive transitional goal accomplishment, to encourage the students to participate and become a community member, to establish and maintain interactions with staff and peers, and to organize the teaching day into a comprehensible structure format promoting success for children on the spectrum. Some of the desired improvements include developing self-esteem and independent living skills; improving
physical stamina, coordination and strength; stimulating a broad range of intellect by including music, art and drawing; and, overcoming challenges and obstacles while gaining confidence in one’s own successes.

*Boston Higashi School Art Program*

Following a series of five steps, the BHS art program follows a routine structure. The first step directs the students to sit in designated seats and follow the physical routine (straight line with peers, hands down, quiet mouths, etc.). The second step consists of the art teacher going over classroom rules with students, directing them to verbally repeat and follow as the teacher visually points out the words of each rule. The following step entails the support teacher (classroom teacher or other staff) providing behavioral supports consistently through the class. For example, when a student begins to display self-stimulatory behaviors the support teacher will have the student repeat the physical routine (feet down, hands down, quiet mouth). The fourth step involves the art teacher providing a pre made example of the art activity and going step-by-step through the process of art making with the students, focusing on fine motor skills and listening comprehension, until the end of class time or until the product is completed. During this process at the fifth step, students experience the target skills of trace/draw, color and/or cut/collage (BHS Art Division Yearly Educational Planning, 2009-2010). The focus in classes is on individuals moving together as one unit in a team-oriented approach. The organized structure of this format also provides for behavioral breaks if necessary, hence, the utilization of the support teacher providing individual-based prompts/interactions if needed.

BHS provided prompts using specified levels of prompts and choosing the prompt based on the need of the student. For example, if a child drew a straight line but lacked task attention, the staff member would choose to non-verbally point at the start point for the child to refocus on the art activity. Then the child would either complete the task directive of drawing a straight line independently, or be provided with other prompts as necessary with the goal of decreasing and/or
eliminating prompts as the school year progressed.

The program teachers recorded the quantity or frequency of prompts using notations if they were continuous, frequent, occasional, or initial. The teachers defined the quantity/frequency of prompts as; continuous- more than eight times throughout the class period, frequent- six times during the class period if the student needed constant prompting to complete task directive, occasional- the student needed only a few (less than five times) prompts, and initial- the student only required prompts at the beginning of the tutorial and then was able to work independently for the remainder of the lesson activity. Then they noted the type of non-verbal or verbal prompt used as defined below.

1. Hand-over-Hand (HOH) is when the teacher physically holds the student’s hands to guide and lead them in the activity.

2. Physical Guidance is similar to HOH but relies more on providing a physical boundary to lead the student to follow the activity. For example, if the student is tracing the leaf picture, the teacher may use his or her hand to act as a physical boundary of the leaf so the student stays on the provided leaf guideline.

3. Touch Prompt is used when the teacher physically holds the student’s hand and guides them along the lines of the given activity to show them where to trace, draw or color (as per directive of art activity) their line.

4. Pointing Prompt is utilized when the teacher points at the beginning of the leaf line to the endpoint of the leaf line so that the student can distinguish the image of the action the teacher is requesting of them.

5. Gestural Prompt is used to imitate actions to lead the student to independent working skills.

6. Eye Gaze is when the student follows the eye contact of the teacher back to the task (activity) being asked to perform.
7. **Contextual Prompts** include materials, schedules, routines, and peers as prompts.

8. **Verbal Prompts** are given to the student to either stay on task of directive, use specific materials, etc.

Finally they noted proximity that they defined as the level of physical guide that the teacher and the student maintain between each other to keep the student on task.

**Structured Art Experiences using the DLT Method**

Dr. Kitahara (1983) saw art as part of the primary curriculum. She suggested that by incorporating an emphasis on areas like art, students could develop increases in functioning skill sets and ego development. The role of art in the DLT method is to promote more meaningful experiences and to enhance authentic living (being part of the world by interacting and responding, not just observing).

The most commonly used structured art experience technique is the *Copy Train Program* (BHS, 2009). The *Copy Train Program* is a series of repeated exercises that the students participate in to promote three ultimate goals; to become familiar with shapes and forming a shape, to improve awareness and focus on daily life (seasons, events, holidays, community and world) and to become competent in drawing through a method of instruction that might impact for future recreational activity and quality of life. The format of the *Copy Train Program* follows a repetitive structure of drawing that enables the student to practice through repetitions. For example, if the goal of the art lesson is to teach the student to draw a leaf and identify appropriate leaf colors (green, orange, etc.), preliminary drawing exercises may include a provided leaf drawing and the child is directed to follow the lines of the leaf. After the student has mastered the provided leaf shape, the teacher may then provide an exercise sheet that depicts a leaf with a given template (dotted lines) that encourages the student to follow but allows less structure from the teacher. After mastery of that level, the teacher may simply provide a blank paper and the student is directed to draw the leaf independently. Throughout this process,
prompts are provided as necessary. For the child with ASD, repetitious exercises enable them to cognitively connect to the shape, learn skills such as appropriate grasp of writing utensil, appropriate line marks (connecting all lines to form one shape) and appropriate leaf colors. All BHS students (4-22 years) follow this structured art format.

**DLT History of Research Studies**

The research on DLT is limited. To date there have been few studies (Larkin & Gurry, 1998; Tutt, Powell & Thornton, 2006; Richardson, Langley & Moya, 1999) investigating the efficacy of the method that provide quantitative data. It is important to note that while there have been studies performed in Japan on the DLT method, English translations were unavailable (Kitahara, 1976; Kitahara, 1979; Kitahara, 1980).

Larkin and Gurry (1998) evaluated whether or not students with autism made progress using the DLT methodology in academic subjects. Three researchers participated via observations of students with ASD in three different grade levels: primary, elementary and junior high. Six students in each grade level participated in this study. Participants were of similar ages, diagnoses, communication skills levels and behavioral patterns. At the time of the study, the children had not undergone intelligence testing using western assessments. Rather, the students were observed in the categories of attending behavior, inappropriate responses and appropriate responses. The findings suggested that the DLT method was successful in the areas of improved behavior and attending skills, but an improvement in the areas of appropriate response was not evident. The authors noted that the target students did not appear to follow teacher directions or comprehend what was being asked of them. This lack of language comprehensions skills is well documented in the literature as a major area of concern for children with autism. There were two limitations found in Larkin and Gurry’s (1998) study; the lack of progress in *Appropriate Responses* (to follow specific directions or to comprehend what the teacher is asking of the student) which leads to questioning what language-based or academic
skills the students are actually learning, and that “the data reflected a very limited understanding of language concepts by the students, causing frustration with the oldest student and a passive resistance on the part of the two younger students” (p. 341). Tutt, Powell, and Thornton (2006) suggested, “learners with autism, by definition, lack awareness of primal communication that inevitably leads to a lack of key understandings and an inability to develop general abilities and specific skills” (p. 69).

Richardson, Langley & Moya (1999) performed a comparative study of educational methods between Daily Life Therapy, Treatment and Education of Autistic and Related Communication-Handicapped Children, and the Special Learning Difficulties program. Richardson, et al (1999) set out to investigate how development of children with ASD varies according to the educational programming at their school in the United Kingdom. Seven European schools participated in the study and a total of 80 children between the ages of 3-18 years with a diagnosis of Classical Autism were the participants. A total of 18 children from the school practicing DLT participated. Their findings revealed that the DLT program showed significant development in more of the study features than any of the other participants. Findings revealed that almost all behaviors improved among the 80 children, but significantly more change was shown for Daily Life Therapy group than for the two other groups. The DLT group improved in areas such as eating, drinking, sleeping and toilet training, and decreases were noted in physical aggression toward others and self-injurious behaviors.

**Summary**

*Lack of evidence-based research on art education, art therapy and ASD*

There remains a lack of empirically based research to support or refute the use of art (art education and art therapy) for children with ASD. According to Martin (2009), although some art therapy literature supports the benefits of work with children with ASD, the literature still “lacks a significant amount of quantitative data, comparison groups, larger subject groups, multi-
site or replicated studies, studies with adult or adolescent clients, or outcome-based studies” (p. 187). While art education and art therapy professionals work with this population, little solid data supports their work. Martin (2009) suggested that difficulties in the data that are currently available includes an overlap of visual tools and techniques, research differences due to lack of experimental data, and lack of information regarding specific details on the use of art therapy for persons with ASD. To establish significant results in the effectiveness of art therapy and art education for children with ASD, studies need to cover larger composites of effectual data supporting such practices.

_Lack of educational funding toward establishing school art programming_

As noted earlier, the number of children with ASD, who are served under the Individuals with Disabilities Education Act (IDEA) in public schools in the US has risen sharply. IDEA is a government-funded program that approves American early intervention, special education and related services to more than 6.5 million children diagnosed with disabilities from birth to 21 years (IDEA, 2011). Under this act, children (ages birth-2 years) and their families are eligible to receive early intervention services. Those children ages 3-21 years are also eligible to receive special education and related services under the IDEA Part B. The lack of research as reviewed here may present the biggest obstacle for the inclusion of art therapy in programs for these children.

Osborne (2003) mentioned other obstacles to inclusion of art therapy that included lack of time and resources, lack of knowledge and experience, development of therapeutic spaces, the assessment of pupil progress and effectiveness of the art therapy treatment. However, new research coupled with additional resources, could make art therapy programming an increasingly attainable and desirable goal in school settings. Osborne (2003) stated, “Providing the necessary conditions where learning can most deeply and intimately begin, or in other words forging
common ground where teacher and pupil can meet, it is suggested, is the fundamental goal of education and of treatment of the child with autism” (p.422).

Lack of research supporting the use of structured art experiences for the child with ASD in school settings

Research on autism has begun to clarify many aspects of this neurodevelopmental disorder (Tager-Flusberg, et al., 2001). In addition, research has begun to identify the interconnectedness between the underlying biological causes and cognitive and behavioral manifestations of the disorder (Volker & Lopata, 2008). However, a need for individualized approaches to intervention and treatment for children remains an issue (Humphrey & Parkinson, 2006) as prevalence rates in the future are predicted to continue to increase (Volker & Lopata, 2008). In the United States, many children with ASD do and will receive services in programs located in public schools, and these services will need to be individualized to respond to the range of deficits that children with ASD exhibit (Humphrey & Parkinson, 2006). Art education and art therapy may have the potential to provide children with ASD the support necessary to nurture their growth and individual development. Schools might benefit from adding this type of augmented service to their education programming.

Art Assessment and Data Collection establishing effectiveness of School Programming

Art therapy has been suggested as a promising intervention for children with ASD (Dubowski, 1984; Betts, 2003; Martin, 2008) establishing art as symbolic imagery being central to cognitive functioning. Evans & Dubowski (2001) proposed that drawing indicates a developmental shift that is communicative in nature. Research on ASD and art therapy is currently limited and frequently found in case report format. Further study is warranted because art therapy may be able to address the social and communication deficits that are the hallmark symptoms of ASD. Art has the potential to provide a communication tool through which these symptoms can be addressed and through which growth and development can be enhanced.
Utilizing art assessments for the child with ASD would also benefit the school programming to ascertain the effectiveness of their educational programming. Art assessments would then serve to maintain a sense of constant effort in the treatment offering it provides for this population. In addition, maintaining student art portfolios may provide an effective measure of progress over time to see whether or not the child with ASD is completing annual goals and objectives, or if goals and objectives need to be modified based on the individual. Research on art therapy for children with ASD within public school programs could prove vital for enriching treatment programs overall.

The purpose of the present study was to document the DLT program for children with ASD in the Boston Higashi School, to examine why and how BHS achieves its goals in the art program, and to provide other educators the information they need to implement similar programs in their own schools.
CHAPTER 3

Method

At the end of the 2009-2010 school year, data were collected at the Boston Higashi School (BHS). The BHS art division focused on five primary goals for the children: (1) to improve assigned skills through repetitious practice; (2) to perform sets of skills by memorizing tasks; (3) to have awareness of other people and their lives and/or surroundings; (4) to find pleasure in art; and (5) to perform art with appropriate behaviors (BHS Art Division Yearly Educational Planning, 2009-2010). These goals were designed to follow a structured art format in which the art lessons were planned, facilitated and administered in an organized configuration.

The art program also focused on seven categories of art along with underlying objectives to support targeted skills building. These areas were Readiness, Drawing, Coloring, Scissors, Glue, Art Projects, and Ceramics and composed the target skills that students were expected to progress toward. For this study, the researcher focused on two of the aforementioned art objectives; drawing (trace/draw development) and coloring. This decision was based on the consultation between the researcher and Dr. Michaela Kirby from information provided to them from the BHS art teachers determining that drawing (trace/draw) and coloring were the only aspects that could be measured from the final art products. Draw and color artworks lend themselves to being measured much more readily than the other art objectives (e.g., Readiness, Scissors, Glue, etc.)

Two main methods of evaluation were used in the study: quantitative art product analysis and interviews with teachers and art program staff about their perceptions of the DLT art education method. The intent of the combined methods was to examine evidence of the art program meeting the stated goals of the lesson plans, and offering context by understanding the experiences of the teachers and staff of the program. Both methods contributed to a comprehensive analysis of the BHS art program evaluation.
The data collection and interviews were conducted at BHS in Randolph, Massachusetts, a private school that provided academic instruction to students diagnosed with ASD, ages 3 to 22 years. The educational method of the school was Daily Life Therapy (Kitahara, 1983) and the art program was an integrated part of this educational method.

Analysis of Art Products

Participants

Twenty-six students diagnosed with ASD participated in the study. Children were eligible to participate if they were enrolled in the focus grade levels (Elementary and Intermediate) during the BHS 2009-2010 school year. Covering two levels at the Boston Higashi School, the study included 10 elementary level students and 16 intermediate level students, ranging in age from 8 to 14 years. These participants were enrolled in grade levels (3 to 6) according to their ages rather than developmental levels. The participants were 27% female and 73% male. Seventy-one percent of the students were Caucasian, 12.5% Black or Hispanic, 12.5% Asian and 4% other. More than a third (37.5%) of student participants took prescribed medications. BHS provided one educational program for both residential students and day program students. The study participants included 27% residential students, 65% day program students, and residential or day program information was missing for 8% (two student participants).

Prior to the research, all participating parties provided appropriate informed consent. The researcher applied for and was granted IRB approval by the affiliated university (Lesley University) and the pilot research location (Boston Higashi School). Parental consent was given and all parental guardians approached actively endorsed the research, refer to Appendix A-B to view Parent Letters of Research Invitation and Informed Consent). Codes were assigned to each child to protect participant anonymity. The research did not involve any contact between the researcher and the children. The children’s artwork and teachers’ lesson plans, progress notes,
and interviews composed the data collected.

*Childhood Autism Rating Scale*

BHS did not provide a developmental assessment for students unless previously conducted before academic enrollment. Therefore, the researchers requested the school use the Childhood Autism Rating Scale Second Edition (CARS; Schopler, Reichler & Rochen-Renner, 2010) to provide accurate assessment of developmental levels as a baseline for comparison of individual functioning. The academic level art teacher (elementary or intermediate) tested each participant. The school tested the children at the end of the 2009-2010 school year. The CARS is a diagnostic tool designed to evaluate children and adolescents who are suspected of having ASD. It is a comprehensive autism diagnostic tool appropriately administered to children over the age of two years. The CARS purports to assess degree of autism as well as differentiating between autism and developmental disabilities.

The CARS identifies children as severely autistic, moderately autistic, mildly autistic, or non-autistic. The assessment includes 14 criteria: relationship to people, imitation, emotional response, body use, object use, adaptation to change, visual response, listening response, taste-smell-touch response and use, fear and nervousness, verbal communication, activity level, level and consistency of intellectual response, and general impressions. The aforementioned behaviors are rated on a scale of 1-4: (1) normal for child’s age, (2) mildly abnormal, (3) moderately abnormal and (4) severely abnormal. Midpoint scores were also applicable in the form of .5 (e.g., 1.5, 2.5, and 3.5). CARS scores range from 15 to 60 and the cutoff point for an autism diagnosis is a score of 30 or above. Scores falling within range for a diagnosis of autism can be broken down further to reflect the degree to which symptoms are present. According to the scoring standards, scores between 30 and 37 indicate mild to moderate autism and scores between 38 and 60 are characterized as severe autism.
The BHS art teachers used their institution’s method and educational format to structure and facilitate the art products as reflected in their lesson plans and progress notes. The researcher collected and analyzed the prompt data.

The researcher, Dr. Michaela Kirby who arranged access to the BHS evaluation project, and a research assistant who was a graduate student photographed the art products at the school and collected teachers’ notes on prompts and progress notes. They then collated the artwork and the teachers’ evaluations of the art experience to put together sets of work for the research. This produced multiple sets of art and notes for each student, ranging from 10 to 32 per student. Then, based on the two art goals chosen for analysis, drawing and coloring, children’s artwork that was in response to these two goals and representative of three time periods, early fall, winter, and spring/summer was chosen for use. This process created six artworks for rating for each of 23 students, or 138 representative samples for rating. Artwork for three children could not be used because there was insufficient teacher or art data. The researcher then took the 138 de-identified, digitally photographed artworks and teacher goal data, and entered them into a detailed spreadsheet. For each child and their artwork, the researcher documented the IEP art goals then cross-referenced them with the art lesson plan for each specific artwork and used the student progress notes related to that artwork. The researcher wanted to organize all of the information pertaining to the student’s artwork into one spreadsheet for analysis. The premise of the structure was to ensure that information for each student was geared toward their explicit educational plan, not only an overview of the general IEP goals.

The researcher reviewed multiple art assessments including the Silver Drawing Test of Cognition and Emotion (Silver, 1983), the Levick Emotional and Cognitive Art Therapy Assessment (Levick, 2001), the House-Tree-Person Technique (Buck, 1948) and the Formal Elements Art Therapy Rating Scale (Gantt & Tabone, 1998). Then she consulted with Dr. Kirby
and with Dr. Donna Betts, also a committee member and an expert in art assessments, on the best means of developing a rating scale for the art. This group considered the Formal Elements Art Therapy Rating Scale (FEATS), and other assessments before deciding that a direct mapping approach between the teacher’s goals and directives and the art itself was superior in this particular case. This resulted in an individualized rating scale for each child that was tailored to exactly what the teacher intended to have the child draw.

Starting with the IEP art goals and then cross-referenced with the art goals and objectives for the art lesson plans, a unified listing of features was created for each child for that artwork. This combining of IEP and art lesson goals provided the greatest amount of specific information that could be rated. Each criterion from each child’s art was rated as: 0 = No evidence of the feature was presented; 1 = Some indication of the feature was present; 2 = Clear evidence of the feature was presented; and 3 = Feature was completely addressed. At the conclusion of rating, data were added to each child’s record to document the nature and level of prompts used during the creation of the artwork. This component was added to evaluate whether or not prompts increased, decreased or were eliminated by the end of the academic school year. Refer to Tables 3-5 for full example of the art rating scale for participant scores.
Table 3

**Art Rating Scale for Elementary Student Participant, Draw**

<table>
<thead>
<tr>
<th>Participant:</th>
<th>E1</th>
</tr>
</thead>
<tbody>
<tr>
<td>School Year:</td>
<td>2009-2010</td>
</tr>
<tr>
<td>Level:</td>
<td>Elementary Intermediate</td>
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<tr>
<td>Art Skill Levels:</td>
<td>Draw Color</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Art Goal Category</th>
<th>DRAW: Daily Drawing Warm up, &quot;Let’s draw straight lines&quot; 3/10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art Skill Level 1</td>
<td>Did the student draw a simple image composed of basic shapes with a writing utensil (making marks)?</td>
</tr>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Tracing</td>
<td>Did the student trace a line (4 inches)?</td>
</tr>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Copy</td>
<td>Did the student copy a simple shape (i.e., circle, square, triangle) on the blackboard/desk/exercise sheet?</td>
</tr>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Drawing</td>
<td>Did the student connect the dots to make horizontal and vertical lines?</td>
</tr>
<tr>
<td></td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Prompt Level</th>
<th>what level of prompt was needed to get this goal?</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOCH</td>
<td>PP</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Art Goal Category</th>
<th>DRAW: Daily Drawing Warm up, &quot;Flowers&quot; 5/10</th>
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<tbody>
<tr>
<td>Art Skill Level 1</td>
<td>Did the student draw a simple image composed of basic shapes with a writing utensil (making marks)?</td>
</tr>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Tracing</td>
<td>Did the student trace a line (4 inches)?</td>
</tr>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Copy</td>
<td>Did the student copy a simple shape (i.e., circle, square, triangle) on the blackboard/desk/exercise sheet?</td>
</tr>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Drawing</td>
<td>Did the student connect the dots to make horizontal and vertical lines?</td>
</tr>
<tr>
<td></td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
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<tr>
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</thead>
<tbody>
<tr>
<td>HOCH</td>
<td>PP</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Art Goal Category</th>
<th>DRAW: Daily Drawing Warm up, &quot;ZigZag&quot; 7/10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art Skill Level 1</td>
<td>Did the student draw a simple image composed of basic shapes with a writing utensil (making marks)?</td>
</tr>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Tracing</td>
<td>Did the student trace a line (4 inches)?</td>
</tr>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Copy</td>
<td>Did the student copy a simple shape (i.e., circle, square, triangle) on the blackboard/desk/exercise sheet?</td>
</tr>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Drawing</td>
<td>Did the student connect the dots to make horizontal and vertical lines?</td>
</tr>
<tr>
<td></td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
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<tr>
<th>Prompt Level</th>
<th>what level of prompt was needed to get this goal?</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOCH</td>
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</tr>
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# Table 4

**Art Rating Scale for Elementary Student Participant, Color**

<table>
<thead>
<tr>
<th>Participant:</th>
<th>E1</th>
<th>School Year:</th>
<th>2008-2010</th>
<th>Level:</th>
<th>Elementary ____ Intermediate ____</th>
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<tbody>
<tr>
<td>Art Skill Levels:</td>
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<td>Color</td>
<td>Criteria for Assignment:</td>
<td>0</td>
<td>No evidence of feature</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>Some indication of feature</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td>Clear evidence of feature</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td>Feature completely addressed</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Art Goal Category: COLOR</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Art Skill Category: COLOR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Art Skill Level: 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did the student Color/Paint inside the lines of simple meaningful images composed of basic shapes using a rhythmic up and down stroke?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Did the student Color using color materials (e.g., markers/crayons/paints/pencils) and color quality correctly?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Did the student identify primary colors (e.g., red, blue, yellow)?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Did the student identify secondary colors (e.g., orange, green, purple)?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Crayons/Markets:</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Art Skill Level: 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did the student make consistent stroke (at least 4x) by moving the coloring utensil up and down (or left to right) on the paper to color in the designated area?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Did the student make a small circular movement with a coloring utensil repeatedly to color in the designated area?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Did the student color in a simple shape/picture (4 inches by 4 inches)?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Did the student color in the general area of a simple shape/picture (4 inches by 4 inches) by staying mostly within the lines?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Prompt Level:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>what level of prompt was needed to get this goal?</td>
<td>HOH</td>
<td>PP</td>
<td>VP</td>
<td>PO</td>
<td>IP</td>
</tr>
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</table>

<table>
<thead>
<tr>
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<th></th>
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</thead>
<tbody>
<tr>
<td>Art Skill Category: COLOR</td>
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<td>0</td>
<td>1</td>
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<tr>
<td>Did the student identify secondary colors (e.g., orange, green, purple)?</td>
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<td>2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Crayons/Markets:</td>
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<tr>
<td>Art Skill Level: 1</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Did the student make consistent stroke (at least 4x) by moving the coloring utensil up and down (or left to right) on the paper to color in the designated area?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Did the student make a small circular movement with a coloring utensil repeatedly to color in the designated area?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Did the student color in a simple shape/picture (4 inches by 4 inches)?</td>
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<td>3</td>
<td></td>
</tr>
<tr>
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<td>0</td>
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<td>2</td>
<td>3</td>
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<td></td>
<td></td>
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<tr>
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<td>1</td>
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<td>3</td>
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</tr>
<tr>
<td>Crayons/Markets:</td>
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<td></td>
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<td></td>
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</tr>
<tr>
<td>Art Skill Level: 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Did the student make consistent stroke (at least 4x) by moving the coloring utensil up and down (or left to right) on the paper to color in the designated area?</td>
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<td>2</td>
<td>3</td>
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</tr>
<tr>
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<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Did the student color in the general area of a simple shape/picture (4 inches by 4 inches) by staying mostly within the lines?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Prompt Level:</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>what level of prompt was needed to get this goal?</td>
<td>HOH</td>
<td>PP</td>
<td>VP</td>
<td>PO</td>
<td>IP</td>
</tr>
</tbody>
</table>
Table 5

Art Rating Scale Legend of Assessment Terminology

<table>
<thead>
<tr>
<th>KEY: Criteria for Assessment:</th>
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</thead>
<tbody>
<tr>
<td>0</td>
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<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
</tbody>
</table>

Prompt Level Descriptions:

- HOM: Hand-Over-Hand
- PP: Physical Prompt
- VP: Verbal Prompt
- PO: Pointing Prompt
- IP: Independent Work

Prompt Level Frequency:

- C: Continuous, numerous
- F: Frequent
- O: Occasional, Light
- I: Initial
- CP: Counting Prompts

Two raters independently evaluated the art products using the art rating tool as described. The two raters were the researcher and Dr. Karen Vecchiarello, a second grade special education teacher for children with ASD. The raters were blind to the teachers’ prompts at the time of rating. Prior to rating the art, the researcher tested the rating scale by asking several art therapy colleagues to use it with a sample of de-identified art from the study. These consultants recommended clarifying the terminology used pertaining to art education model (e.g., “meaningful,” etc.), and to provide some indication as to how raters were to evaluate the percentage breakdown (e.g., 0-30% of the page, 31-70% of the page, etc.) to create a more consistent measurement of ratings. The consultants also provided positive feedback in the respect of future use of this rating scale after its development and refinement of measures. The researcher trained the other rater by providing pre-training prior to rating. This pre-training consisted of going over the vernacular of the art goal terminology, and the measurement scale of criteria scores. The researcher also provided availability to the second rater for any questions during the rating period.

Data Analysis

Prior to data analysis, rater agreement was calculated and then rating scores were chosen to
use for analysis. Because the purpose of the study was program evaluation, data collected were only analyzed as group data looking for trends of change among the children as a group. Then one-way repeated measures analysis of variance was first used to inspect for changes across all children for the color and draw artwork. Subsequent analysis of the frequency of prompts used for each artwork was also investigated using one-way repeated measures analysis of variance for the color and draw artworks. Finally differences between elementary and intermediate students and students with mild to moderate autism and those with severe autism using the CARS scores were investigated using mixed ANOVA.

**Analysis of Interview Data**

This portion of the study used qualitative methods to determine how the teaching staff experienced the DLT method in practice in the art program. The researcher and the graduate assistant completed four interviews, one each with the Art Division Director (S1), the Art Division Master Teacher (S2), the Elementary Art Teacher (S3) and the Intermediate Art Teacher (S4). The staff participants did not sign an informed consent but received verbal permission by the school to participate in the interviews. The staff participants were interviewed using a 13-question interview guide concentrating on areas of the staff person’s education and training, their experience and perspectives on working with ASD, the DLT methodology, and the BHS Art Program. The interviews took place in quiet spaces at BHS; the art education staff conference room, art teacher classroom or the school’s official conference room. Each interview took between 1-2 hours, and was recorded digitally and then transcribed verbatim by an outside transcription editor. The researcher focused the analysis on the following areas: background experience with the child with ASD (education and training), areas that are most important/effective/powerful within the art program, the value of teaching art to the child with ASD, and overall perspective of the strengths and weaknesses of the DLT method used at BHS. This component of the study was implemented to contextualize the quantitative data gathered to
evaluate the art program.

*Interview Participants*

S1 was the Art Division Director for Intermediate and Elementary Divisions. He worked at BHS for 16 years, first beginning as an art teacher for 11 years, then promoted to Division Director for the past five years. His first experience with a person with ASD was with an initial student interaction he had when he began working at BHS. His education included a Bachelor’s of Arts in English with a minor in Philosophy, Masters of Arts in Education with a concentration in Intense Special Needs, and Massachusetts Teaching Certification in Severe Special Needs. S1 also held certification as a Non-Abusive Psychological and Physical Intervention (NAPPI) trainer for his school.

S2 was the Master Art Teacher at BHS. She was the supervisor of the entire art department including four art teachers. She was also teaching the high school art program at the time of the interview. S2 had been an employee at BHS for 17 years. Of those years, she was first a classroom teacher for 14 years, then an art teacher for the past three years and Master Art Teacher for the past year. S2’s educational background included an undergraduate degree in Education, a Masters of Arts in Education from New York University and a Massachusetts teaching certification in Intensive Special Needs K-12. Her previous experience with persons with autism included work in an ABA program (1990), assistant for a summer camp counselor for people with ASD (1991), and an art teacher for an after-school program for children with ASD (1992).

S3 was the Elementary Art Teacher at BHS. She was the newest addition to the teaching staff at BHS with 1.5 years of employment. She held an undergraduate degree in Education and was licensed under the Massachusetts Board of Education as an Art Education Teacher for grades K-8th. S3 did not hold any other training in areas pertaining to the ASD population but she did have experience as her brother was diagnosed with high-functioning ASD during latency.
She shared that she worked closely with the Intermediate Art Teacher and BHS often provided training for the staff in areas of DLT and other topics of autism.

S4 was the Intermediate Art Teacher at BHS and had been with the school for 2 years. Her educational background included a Bachelors of Arts degree in Industrial Design from Carnegie Mellon and a Masters of Arts Degree in Elementary Education from Lesley University. S4 held a Massachusetts State teaching certification in Elementary Education, Middle School Education and was working on certification in Moderate Special Needs. S4 also had personal experience with the ASD population as her nephew was diagnosed on the spectrum. Her previous experience working with ASD included art teaching in a public school for 2 years, and art teaching in a private school for one year focused on differentiated instruction. S4 added that additional training was provided by BHS at professional development meetings and a 2-week intensive training period prior to the new school year to cover topics on autism, occupational therapy, physical therapy, etc.

Data Analysis

The researcher focused on four questions of the interview process. They were; (1) how does DLT meet the needs of children with ASD, (2) were art goals and/or objectives met or not met using the DLT method, (3) did the staff participant feel that the methodology worked, and if so, why, and (4) what was the value of teaching art to the child with ASD? The researcher then organized all of the staff participants’ answers into a spreadsheet to cross analyze emerging themes that displayed the consistencies, inconsistencies and subtle variations across participant responses. The researcher organized the themes by counting their frequency in each research question. The analysis integrated extracting any other information that was picked up from the interview including overall perspective of the effectiveness of the DLT art program for the child with ASD and weaknesses of the data collection. The end product of comparative responses was graphed into a table format to inspect for visible links and disconnects of the data. The
researcher looked for themes across the participants’ responses to analyze similarities and/or differences, and overarching categories of themes among popular opinion of the DLT methodology for the child with ASD. Themes that were generated included importance of; consistency among method facilitation, providing opportunities for meaningful experiences, individual accountability, success of individual goals and objectives, holistic approach to reaching the child with ASD, awareness of the greater world around them, and the encouragement of visceral experiences in learning. The qualitative data analysis concluded with a summary of final results based on the research questions posed.
CHAPTER 4

Results

This evaluation of the art program at the Boston Higashi School (BHS) used analysis of children’s art products at three points during one school year, and interviews with program staff to look for evidence that the program met its stated goals. Results are presented in two parts, the analysis of the art products and then the analysis of the interview data on staff experiences of the Daily Life Therapy (DLT) art program.

Analysis of Art Products

Rater Agreement

As a rather precise measure of the extent of agreement between the two raters, and to account for the fact that the number of criteria rated for each child and each artwork could differ, percent agreement was calculated. Agreement was counted as ratings that were within two points of each other. Disagreements were counted as any other difference between ratings.

Using this metric, average agreement for draw artworks was 84%, and 64% for color artworks. Table 6 displays the individual values of agreement for each artwork.

Table 6 Rater Agreement as Percent Agreement

<table>
<thead>
<tr>
<th>Artwork</th>
<th>Draw</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>Artwork 1</td>
<td>91%</td>
<td>61%</td>
</tr>
<tr>
<td>Artwork 2</td>
<td>74%</td>
<td>65%</td>
</tr>
<tr>
<td>Artwork 3</td>
<td>87%</td>
<td>65%</td>
</tr>
</tbody>
</table>

In general, ratings for draw were noted to be higher values. The fact that criteria to be satisfied per child per artwork were not the same and possible scores across artwork for children could range from a low of 30 to a high of 51, may have introduced a difficulty factor for raters.
rendering percent agreement (a method underestimating agreement). Due to this concern, Pearson correlation coefficients were also calculated between raters for each artwork rated. Results for this analysis are located in Table 7.

Table 7 Rater Agreement Calculated as Pearson Correlation Coefficients

<table>
<thead>
<tr>
<th>Artwork</th>
<th>Draw</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>Artwork 1</td>
<td>.93</td>
<td>.70</td>
</tr>
<tr>
<td>Artwork 2</td>
<td>.93</td>
<td>.93</td>
</tr>
<tr>
<td>Artwork 3</td>
<td>.98</td>
<td>.91</td>
</tr>
</tbody>
</table>

This analysis shows that correlations between the raters were relatively high. With respect to color, rater #1 evaluated with a focus on typical art therapy goals (focus was placed on specifics of stroke variance, stroke containment and color associations), while rater #2 evaluated with a focus on typical art education goals (centering on color appropriateness and completion of color exercise). The most disagreement between the raters on color pertained to the first color artwork in the fall. Regardless, a decision was made to use the researcher’s ratings as the ratings of record for data analysis. This method was considered preferable to averaging ratings, given the extent of agreement measured, and is recommended when a greater level of agreement exists.

Analysis of Artwork

The researcher’s ratings were standardized to be comparable across children and artwork by calculating each rating as a proportion of the full score possible given the criteria rated. The same approach was followed for both the draw and color artwork. First descriptive statistics were generated, followed by one-way repeated ANOVA for the draw and color artwork groups to assess for possible differences for the three timeframes in which the art was created. Frequency of prompts associated with the artwork groups was then analyzed for possible difference over the timeframes. Due to the character of the prompt data, it was not possible to combine prompt data
with artwork ratings into any meaningful form so the prompt data were analyzed separately. Finally, mixed ANOVA was used to assess the data for differences between the age groups (elementary and intermediate) and the severity of autism as measured by the CARS (mild-moderate and severe) with respect to the three timeframes. Statistical analyses were employed with the data to explore statistical differences not likely due to chance rather than for generalizing to the population given that the data were evaluation rather than research data.

Descriptive statistics for the rated artwork are displayed below. The scaling of the scores by the full score that was possible created a metric by which the scores represent the proportion to which the children succeeded in the artwork tasks. Thus, in Table 8, the mean for fall (time 1) can be interpreted as indicating that on the average 40% of the scored criteria or goals set by the teacher for the artwork were met. Data over the three time periods shows that on the average, children did better at midyear than in the fall or early summer.

Table 8 *Descriptive Statistics for Draw and Color Artworks across the three time periods (Fall, Winter, Spring/Summer)*

<table>
<thead>
<tr>
<th>Draw</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.40</td>
<td>.21</td>
</tr>
<tr>
<td>2</td>
<td>.52</td>
<td>.21</td>
</tr>
<tr>
<td>3</td>
<td>.40</td>
<td>.21</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Color</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.71</td>
<td>.17</td>
</tr>
<tr>
<td>2</td>
<td>.60</td>
<td>.20</td>
</tr>
<tr>
<td>3</td>
<td>.49</td>
<td>.17</td>
</tr>
</tbody>
</table>

Data for prompts in Table 9 reflect only the number of different prompts recorded for each child for each artwork. Note that for both types of artwork, prompts increased at midyear.
Table 9 Descriptive Statistics for Prompts for Draw and Color Artworks across the three time periods (Fall, Winter, Spring/Summer)

<table>
<thead>
<tr>
<th>Draw Prompts</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.27</td>
<td>.88</td>
</tr>
<tr>
<td>2</td>
<td>1.86</td>
<td>.94</td>
</tr>
<tr>
<td>3</td>
<td>.95</td>
<td>1.05</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Color Prompts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
</tbody>
</table>

Repeated Measures Analyses

There was a statistically significant effect for time (the repeated factor) for the draw artwork ($F(2, 44)=5.93, p < .01$), the color artwork ($F(2, 44)=12.11, p < .001$), and the prompts associated with both draw ($F(2,42)=6.42, p < .01$) and color ($F(2,44)=4.41, p = .018$) artwork.

Post hoc analyses (Least Significant Difference) of differences for the time periods were relatively consistent. For example, the draw artworks showed significant differences between the first and middle of the year, and the middle and end of the year but not the first and end of the year. Results for color artworks showed the same pattern of significant differences between time periods with the addition that the first and end of the year were significantly different also.

For the prompts, results were the same regardless of whether the artwork was in the draw or color category. Consistently results showed significant differences between the numbers of prompts used at the first and middle, and middle and end of the year but no significant difference between the numbers of prompts used at the first and end of the year. Taken together and
considered carefully in the context of evaluation, these data indicate a change of some sort in the middle of the year compared with both the beginning and end of the year in the children’s performance and the teachers’ prompting behaviors.

Artwork in the middle of the year corresponded to a spring art festival, but as the artwork for the festival differed from the classroom artwork, this does not explain the difference. It might be possible that the festival energized teachers to use more prompts, thus improving children’s performance. The analyses also raise the question of the possibility of increasing difficulty of color and drawing artwork tasks over time. Teachers did enhance the difficulty of Individualized Education Plan (IEP) art lesson directives as the year progressed from the beginning to the end of the school year. This structure was intended to build upon the students’ skill sets from basic to more advanced levels of draw and color. For example, in the fall, students were given a simple leaf drawing to trace or copy. This image was repeated in many exercises and activities throughout the year with prompts as necessary. Toward the end of the school year, the leaf drawing was given again. According to the model, less or different types of prompts (e.g., in the fall Hand-over-Hand (HOH) should be given, and in the spring fewer HOH and more verbal prompts provided) are used to build independence of skill but still maintains accuracy of directive. Two of the staff participants interviewed for the qualitative component of the study verified this model. The Art Division Director for Intermediate and Elementary Divisions and the Intermediate Art Teacher reported that although BHS teaches accuracy of skills, the level of prompting is the changing variable (decreasing/modifying over time) that might affect scores in areas of artwork evaluation.

**Analysis of Prompts**

An in-depth analysis of the prompts recorded was used to attempt to verify the model as reportedly used by the staff. Analysis of prompts recorded could only be accomplished with simple content analysis. The scales of frequencies (occasional, etc.) for recording and the rank
ordering of the levels of prompts (hand-over-hand, etc.) did not follow and could not be converted to any meaningful numerical scale. Thus, inferential statistical analysis of these data was not possible. Prompts were counted and converted to percentages of the total number of prompts recorded for all draw and color artwork and each artwork individually. Notable overall was that the statistically significant increase of prompts for drawing and color artworks at midyear was quite visible. Other interesting features were that 25% of both color and draw artworks had no prompt recorded, and almost one-third (31%) of draw and one quarter (25%) of color artwork prompts had no frequency of prompts recorded. Independent work (IP) was recorded for 13% of the color but only 4% of the draw artworks. The prompt data did not map clearly to the intended purpose described by the BHS use of the DLT method, or to the interview data the teachers provided.

For the draw artwork (see Table 10) 93 individual prompts were recorded over the 69 artworks; 31% (29/93) of the artworks had no frequency of the prompt recorded; 26% (18/69) of artworks had no prompt recorded at all.
Table 10 *Prompts Recorded for Draw Artwork across the three time periods (Fall, Winter, Spring/Summer)*

<table>
<thead>
<tr>
<th>Type</th>
<th>Artwork Time 1 (%)</th>
<th>Artwork Time 2 (%)</th>
<th>Artwork Time 3 (%)</th>
<th>Total Prompts (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOH</td>
<td>28</td>
<td>14</td>
<td>14</td>
<td>18</td>
</tr>
<tr>
<td>PP</td>
<td>14</td>
<td>19</td>
<td>14</td>
<td>16</td>
</tr>
<tr>
<td>PO</td>
<td>24</td>
<td>30</td>
<td>19</td>
<td>26</td>
</tr>
<tr>
<td>GP</td>
<td>0</td>
<td>2</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>VP</td>
<td>17</td>
<td>33</td>
<td>38</td>
<td>29</td>
</tr>
<tr>
<td>IP</td>
<td>10</td>
<td>2</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Total Prompts (%)</td>
<td>31</td>
<td>46</td>
<td>23</td>
<td></td>
</tr>
</tbody>
</table>

Note: HOH (Hand-over-hand), PP (Physical Prompt), PO (Pointing Prompt), GP (Gestural Prompt), VP (Verbal Prompt), IP (Independent Work)

Of all prompts used across the three draw artworks verbal prompts (VP) were used most frequently followed by pointing prompts (PO) and hand-over-hand (HOH). Children were recorded as working independently at only 4%. The greatest use (28% of prompts) of hand-over-hand (HOH) was during artwork 1, and the rate was half this but the same for artworks 2 and 3 (14%). While more verbal prompts were used for artwork 3 than any other (38%), there is no clearly discernable pattern visible that completely corresponds to the pattern put forth by BHS or the teachers in their interviews. It is important to remember that 25% of the artwork had no prompts recorded.

For the color artwork 88 individual prompts were recorded over the 69 artworks. Twenty-six percent (18/69) of the artworks had no prompt recorded at all; 23% of prompts (20/88) had no frequency of the prompt recorded (Table 11).
Table 11 *Prompts Recorded for Color Artwork across the three time periods (Fall, Winter, Spring/Summer)*

<table>
<thead>
<tr>
<th>Type</th>
<th>Artwork Time 1 (%)</th>
<th>Artwork Time 2 (%)</th>
<th>Artwork Time 3 (%)</th>
<th>Total Prompts (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOH</td>
<td>12</td>
<td>5</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>PP</td>
<td>12</td>
<td>8</td>
<td>12</td>
<td>10</td>
</tr>
<tr>
<td>PO</td>
<td>28</td>
<td>40</td>
<td>32</td>
<td>34</td>
</tr>
<tr>
<td>GP</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>VP</td>
<td>24</td>
<td>40</td>
<td>44</td>
<td>36</td>
</tr>
<tr>
<td>IP</td>
<td>20</td>
<td>8</td>
<td>12</td>
<td>13</td>
</tr>
<tr>
<td>Total Prompts (%)</td>
<td>28</td>
<td>43</td>
<td>28</td>
<td></td>
</tr>
</tbody>
</table>

Note: HOH (Hand-over-hand), PP (Physical Prompt), PO (Pointing Prompt), GP (Gestural Prompt), VP (Verbal Prompt), IP (Independent Work)

Of all prompts used across the three artworks, verbal prompts (VP) were used most frequently followed by pointing prompts (PO). Children were recorded as working independently at only 13%. The greatest uses of verbal prompts (VP) were during artworks 3 and 2 respectively. While more verbal prompts (VP) were used overall, pointing prompts (PO) were used nearly as much.

For the color artworks, the only clearly discernable pattern visible was that teachers used more verbal and pointing than any other prompts. In the BHS ordering of prompts, the pointing prompt is ranked 4 and the verbal prompt 8. Nevertheless, the data did not show a progression of the ordering of the prompts used as described in the BHS materials and reported by the teachers.

Correlation coefficients for number of types of prompts and artwork ratings were investigated but revealed no patterns of associations. All correlations were under .2 and many were negative indicating an inverse relationship between prompts and art rating.
Analysis of Ratings by Age and CARS Scores

Consideration of the children’s age levels and severity of autism relative to the rating of the artwork was also considered of interest for evaluation of the program. Thus, artwork ratings over the year were also analyzed using the between groups elements of age and CARS rating in mixed ANOVAS.

For the draw artwork, there was no interaction of time (fall, winter, spring/summer) with age (elementary or intermediate) or CARS rating (mild-moderate or severe). However, there were consistent statistically significant time effects for both analyses. In addition there were significant effects for CARS score ($F(1,21)=5.03, p = .036$) and age ($F(1,21)=5.37, p = .031$). Overall, older children performed better than younger children ($M = .51$ vs. $M = .35$), and mild-moderate children performed better than those with a severe rating on the CARS ($M = .52$ vs. $M = .37$).

For the color artwork, there was no interaction of time (fall, winter, spring/summer) with age or CARS rating. The main effect of time was statistically significant in both analyses. There was no between groups effect for either CARS score or age.

In summary, the mixed ANOVAS indicate that the drawing artwork tasks separated children according to age level and CARS rating, with younger children and those with more severe autism scoring more poorly than those who were older or who had milder symptoms. However, the color artwork tasks did not distinguish between these groups. This raises a question about differences in level of difficulty between the draw and color artwork tasks. It was also noteworthy in the mixed ANOVA analyses that the repeated factor of time remained statistically significant.

Analysis of Interview Data

The qualitative component of the study determined how the teaching staff experienced the DLT method in practice. The following results were based on four staff participants’ responses
to a 13-question interview guide concentrating on areas of each individual’s education and training, their experience and perspectives on working with ASD, the DLT methodology, and the BHS Art Program. The researcher focused on four questions of the interview process for analysis. They were: (1) how does DLT meet the needs of children with ASD, (2) were art goals and/or objectives met or not met using the DLT method, (3) did the staff participant feel that this methodology works, and if so, why, and (4) what was the value of teaching art to the child with ASD? This section will summarize the qualitative results found through the research questions analysis including central tendencies staff participants’ experienced regarding whether or not the art education was effective using DLT for children on spectrum.

After transcription of the interviews, the researcher analyzed the content of the qualitative data by developing themes for responses to each question. These themes focused on the main ideas shared by the participants through their experiences. Frequencies of these themes were then counted and are reported below. Then a second analysis of the data was performed by developing and coding themes across all of the questions. Clusters of these themes were developed to reduce and/or group the themes. Finally, three overarching categories were created and used to characterize the data. The following sections detail results for the two levels of analysis, first the analyses for each research question, and second, an analysis across all participant responses to all questions.

Research Question 1: How does DLT meet the needs of children with ASD?

General consensus among participant responses for research question one resulted in a universal agreement that the program methodology met the needs of their students diagnosed on the autism spectrum. The researcher identified a total of 12 themes (Figure 1) among the participant responses to research question. These themes showed frequencies ranging from 3%-19% among participant responses.

The participant responses emphasized the need for maintaining consistency that would, in
turn, provide richer opportunities and advantages for their students with ASD. Specifically, responses pointed out the importance of a holistic approach to reaching the child with ASD. S3 expressed “I think, in enriching their lives, the people that interact with these students (with ASD) know them and know them well. And giving them opportunities to share with the community, to go out in the community, that, I think is really special.” S4 complimented S3’s response by sharing, “We look and see where the kid’s talents are and whether that is in art, music, PE (physical education) or academics, or whatever it is. We try and sort of scaffold them up to the highest level possible and I think that’s really what makes us (BHS) unique.”

Figure 1

Research Question 2: Were the art goals and/or objectives met or not met using the DLT method?

In examining responses around whether or not staff felt the art goals/objectives were met by the students using the DLT method, the total number of themes found among participant responses was seven (Figure 2). The researcher found that the frequency of themes ranged between 4%-33% among respondents. Some respondents reported that due to the individuality of the students, art teachers need to be flexible in adapting their teaching styles and also create more
practical goals for the students. S2 advised, “most of the time they (goals and objectives) are met. Sometimes particular students do have disabilities and go through phases. That’s part of the puzzle, we have to figure them out. So we do have cases that need to keep the foundation and keep improving and they (students) do meet their objectives and goals.” S3 supported this theory, “Sometimes they are. When I first started, I wrote some IEPs and a year later [I] looked at them and had no idea that those were so unreachable. They just weren’t practical. Now that we’ve had a couple of meetings about how to write better objectives, not that they’re easier, but more reachable and clear of what the student should be doing.”

Participants reported that by creating reachable goals, success would be seen through improvement in goals and objectives, accuracy of skills and increasing independent functioning. In addition to the facilitation of art lessons, responses suggested importance in the areas of encouragement of visceral experiences in learning, providing opportunities for meaningful experiences and consistency among method facilitation. S1 claimed, “I believe our objectives tell you, ‘when prompted, he/she will do it [task directive] this many times.’ There’s not 80% because we want them (student) to be 100% at that prompt level all the time. It’s impossible to be 100% but the basic theory [of] our teaching is that you are not going to let them fail; they’re only going to succeed. They may write their name with 0% independence but 100% accuracy. Then fade your prompt so that they can continue the 100% accuracy with less prompting, I think this (method) is a very different way of doing it.” Reflecting back to Dr. Kitahara, pioneer of the DLT methodology: S4 supported S1’s reflection of accuracy of skills and increase in independence. She stated,

I think they (art goals and objectives) are much more frequently that way [teachers are consistently working with the student in every area of educational programming], I think the sort of philosophy that Dr. Kitahara had instead of just saying ‘ok.’ Johnny will do x by himself 80% of the time. She (Dr. Kitahara) used a metaphor about
crossing the street. If he can cross the street independently 80% of the time, that is not success, at some point you’re squished! It doesn’t matter if you need help or don’t, everyone will do it (the task) 100% of the time with help and taper off until they (the student) are independent.

**Figure 2**

| Q2 Themes found among Participant Responses based on whether or not the art goals/objectives were met using the DLT methodology |
|---|---|---|---|---|---|---|---|---|
| Prompting | Accuracy | Objectives | Consistency | Success | Independence | Improvement |
| Improvement | Independence | Success | Consistency | Objectives | Accuracy | Prompting |
| 4% | 7% | 11% | 11% | 11% | 55% | 19% | 33% |
| 1 | 2 | 3 | 3 | 4 | 5 | 9 |

**Research Question 3: Did the staff participants feel that this methodology works, and if so, why?**

Respondants were asked their perspective on the effectiveness of DLT, and overall suggested that the DLT methodology was effective, as they experienced it at BHS. Eleven themes were identified by the researcher, which showed frequencies ranging between 3%-17%. Participants suggested that factors for the method’s positive attributes included a humanistic approach. S1 recognized,

Daily life therapy is a type of education that goes after everything it is to be human. That doesn’t necessarily mean autism or not autism; just means a good sound education is well balanced. But when you bring it to the autism spectrum, I think daily life therapy is a way of taking all of that and making it understandable for someone for a variety of different types of perceptive learning on the spectrum and giving all those children a chance to experience
every part of who they are. At the same time, it’s very specific, it’s very step-by-step and the methodology used like art is a great example.

Other participants, who suggested that DLT is *often* effective, intimated that the structure of the program is highly beneficial for some of their students, but that some other students who would be able to tolerate more social and flexible schedules could benefit more in a public or inclusionary educational programming. S3 commented, “Some of our students I feel, would do better in a typical environment around more typical kids, around more appropriate models. We hold our kids to very high standards. You have to do a lot of things you don’t like, like stretching their boundaries so they’re not so boxed into autism, but that they’re able to be bigger than [their] autism.”

Participants shared a common perspective specifying that the greatest successes of the program were due to connection with others (teamwork, modeling, engagement and communication), character building (high standards, self-confidence, presence and advocating for themselves), understanding (perceptual and visual learning), quality of life through experiences, appropriateness of different levels, and stretching boundaries and possibilities. S2 confirmed the importance of teamwork. She suggested, “Understanding each other and making a plan together and applying it to the student’s education. Nothing can be done by myself (yourself).”
Research Question 4: What is the value of teaching art to the child with ASD?

Generally there was agreement across responses about the value of teaching art to the child with ASD. Figure 4 displays the 14 themes identified by the researcher for this question, and frequencies of the themes ranged from 2%-15%. Participants reported positive attributes of the facilitation of art education that fosters growth across areas of development but mostly provides a core human need in individuals. S1 conveyed, 

It’s [art] one of the things that under daily life therapy, gives it the respect it deserves. That it’s [art] a class not extra-curricular and it doesn’t get cut when you run out of money, it’s not to enhance your day or have recreation, I think it’s a core human need. Expression, creating forms to represent the world you live in and what you’re feeling is a human need. Yes, all those kind of things are human needs but expressing yourself, I believe, is a human need.

S2 also mentioned the importance of art for the child with ASD. She proposed, “I think the main purpose a lot of the time is to increase our awareness. Awareness of where they [students] are, what they’re doing and what others are doing around them. So coloring inside the shape is to
increase their awareness, there is actually a shape.”

Reliance was placed on creating meaningful experiences through the interaction of students in their environments. S1 offered,

I think what we try to do is relate to something in their life that they have an emotional connection to, and part of that intellectual stimulation is making them aware, you know this is what house looks like, this is what a tree looks like, not just like ‘can you make your fingers [manipulate] in this material [to] create a representation of that tree, but almost saying this is a tree, trees are green. Sky, that’s a sky.’ Sometimes it’s a lot about awareness. I think a lot of that fine motor stuff happens through doing, to use fine motor skills while making a meaningful project. It wouldn’t be meaningful for a child to just rip paper.

Linking the emotional and intellectual connections, perspectives displayed a holistic view of the value of art teaching to the child with ASD. The holistic approach was expressed by S4. She stated, “Exploration of the sensory world, we do that a lot. A lot of our art is, ‘go outside, what season is it? Let’s jump in the leaves. Let’s draw the leaves. Let’s smell the leaves.’ Reacting to art and our environment because it’s something, because imagination is so tough with our kids it’s very easy to look at things from nature or look at stuff and sort of be inspired by that.”
Summary of Responses Across Questions and Participants

Themes. There were a total of nine themes identified across the research questions taken as a group in the second analysis. As shown in Figure 5, the specific themes included; Prompt and Routine (f= 9%, supporting through prompt assistance and maintaining a consistent structure of art class format), Learning (f= 22%, improving areas of cognitive functioning), Active Participation (f= 8%, increasing motivation and task attention), Relationship and Connection (f= 11%, building and maintaining appropriate interactions with peers and others), Improvement and Success (f= 5%, supporting a positive focus on improvement of skills), Individuality and Independence (f= 14%, establishing independence of student by decreasing prompts as applicable and encouraging independent work), Consistency (f= 9%, maintaining a reliable structure of teaching), High Standards (f= 5%, establishing high standards of goals to build student skill set), Opportunity and Advantages (f= 17%, provide the student with opportunities that will offer them experience and learning). The researcher coded each theme by combining
themes that were repeatedly seen during each research question as well as new themes that could be identified when taking the responses together across the questions. Results showed that specific participants coded more heavily in certain themes than others. Specifically, S1 coded more heavily in the area of Opportunity and Advantages. His responses revolved around the encouragement of the DLT methodology due to its positive gains that he has seen through student progress and connection with others. S2 coded more in the area of student individuality and independence. Her responses suggested that based on the facilitation of such a highly structured format and team effort of the staff, her experience had shown students increase in areas of independent functioning. S3 showed increased coding in Learning. She emphasized that due to more realistic assignment of goals, students were more apt to reach their objectives successfully, thus improving learning on perceptual levels of cognition. And S4 coded more heavily in the area of Improvement and Success. She emphasized the individuated process of learning had better assisted in student gains overall (areas of cognition, social experiences and communication).

Figure 5

Clusters. Three clusters were developed from the themes identified across all questions.
and participants in an attempt to reduce the data. Figure 6 displays those clusters: (1) consistency through prompt assistance and active participation ($f= 52\%$); (2) opportunities through an individualized method ($f= 31\%$); and (3) improvement in relationships and connection to the greater world ($f= 16\%$). These clusters showed that more participants reported the impact of consistency through prompt assistance and active participation using the DLT approach to meeting art goals and objectives.

Figure 6

Categories. Finally, the researcher took the 9 themes and 3 clusters, and used them to identify 3 large categories, which she named: offer (attributes conveyed by the participants about what DLT offered through the art program to their students with ASD), structure (characteristics of the program format that made it unique) and results (the effects of evidence from student progress). Analyzing the frequencies of these categories showed a higher frequency of structure in comparison to the offer and results categories. Figure 7 displays the frequencies of the categories.
In summary, results of the interview data showed positive response to the method used in art educational programming, taken as a whole. The participants shared experiences that were an evident factor in their teaching techniques and student progress. Based on these findings, staff participants felt that the art education program using the DLT methodology was effective overall. It is important to note here, that although the staff interview data deemed positive outcomes of the program, when taken with the quantitative data (analysis of the art products), the results were mixed. S4 concluded,

I think the (art) program is extremely strong. Now, do I think it’s absolutely perfect? No, but no program is. Do I see it really significantly improving the lives of these kids? Yes, I see it improving in their skills. I see it improving their quality of life certainly. You can see their self-confidence, you can see a difference when they come in. It feels like they’re much more present because they’re much more willing to engage and communicate what they want and what they need. I see this working and doing so many good things on a lot of different levels.
Summary

Based on the analysis of the quantitative rating of art products there was a noticeable and statistically significant midyear occurrence where children received more prompts from teachers and produced artwork that was rated to more closely match the individual goals for children. There was also evidence that children were more challenged (e.g., lessons were increasingly more difficult) at the beginning and end of the year for both types of artworks in the analysis of variance results. However, while teachers seemed to increase task difficulty over the school year, outside events appear to have affected student and teacher behavior at mid-year, thus, it seems possible that improvement at mid-year was due to staff focus on event planning and not student art goals through structured art lessons. In addition, prompts that were an important part of the lesson structure were not recorded regularly, and no meaningful numbers for analysis could be derived from the prompts, so only simple content analysis of the prompts was possible.

There was evidence that the drawing artwork tasks separated children according to age level and CARS rating, with younger children and those with more severe autism scoring more poorly than those who were older or who had milder symptoms. Because the color artwork tasks did not distinguish between these groups, however questions of differences in difficulty between the draw and color artwork tasks were raised.

Qualitative analysis of the staff interviews showed that while generally positive views of the program and student progress were claimed, bias in responses might have been present as interviewees may have been reluctant to criticize the school and its method. Nonetheless, analysis of the interview data indicated emphasis on the overarching themes of *opportunities through an individualized method*, *consistency through prompt assistance and active participation*, and *improvement in relationships and connection to the greater world*, which were very consistent with the literature on the DLT method.
CHAPTER 5

Discussion

A mixed-method study was conducted to evaluate a Massachusetts private school’s art program in the 2009-2010 school year. The program used the Daily Life Therapy (DLT) method for students diagnosed with ASD. The study focused on 26 students diagnosed with ASD. These students ranged between the ages of 8-14 years and levels of autism varied among participants, ranging between mild-moderate and severe as scored on the Childhood Autism Rating Scale 2nd Edition (CARS; Schopler, Reichler & Rochen-Renner, 2010). In addition, staff members in the art program were interviewed about their experiences with the DLT method.

Three research questions were used to design and organize the evaluation. In this chapter, discussion of the findings is organized according to each research question.

Research Question #1: Is there evidence of success with the art experience goals and objectives in the art products?

Results of the analysis of art products presented moderate evidence of student participants’ success with the art experience goals and objectives. There were three major points found from these results. The first major point determined was that data over the three time periods showed children performed significantly better at midyear than in the fall or early summer. This was accompanied by a corresponding significant increase of teacher prompts for artworks at midyear. Therefore, it was apparent that a change occurred in the middle of the year affecting student progress.

Secondly, there was evidence that difficulty level of art tasks was increased by teachers as reported by program materials. Children scored no better at the first and end of the year on the ratings of the artworks. Thirdly, the draw artwork tasks separated the children according to age group and CARS score, while the color artwork tasks did not differentiate among the children.
In the analysis of the art products, potential bias must be acknowledged as three (9%) of the 26 participants’ data could not be used due to lack of required materials (e.g., lack of sufficient number of art products to rate, missing prompt logs). Another issue was the lack of art assessment at the beginning of the school year to decipher student progress. Art products had no baseline for comparing progress measured over time because BHS did not perform baseline assessments at the onset of the school year. Lastly, selection bias was possible based on the art products, which were provided by the BHS art department. These art products were chosen by the researcher from the 2009-2010 participant art portfolios. Over the course of examining each art product, 6 artworks per participant were chosen based on provided teacher art lesson plans (Draw and Color categories) and time of production over three time periods (Fall, Winter, Spring/Summer). The issue regarding the art products was due to the research team only possessing artworks that were in the students folders, which were not cohesive in materials and other factors included missing work due to student absences, artworks being sent home for some students, etc.

The researcher’s development of the art rating scale was designed to provide a direct mapping approach between the teacher’s goals and directives with the art itself. Each individualized rating scale was tailored to exactly depict what the teacher intended and what each specific child was intended to accomplish, under the parameters of the BHS general guidelines of art goals. The criterion used for the rating scales were appropriately configured as individualized scoring. The structure of rating the prompt levels after the art products were scored proved beneficial in eliminating potential biases (basing the score on the need for help rather than if students indeed accomplished the exact goal being measured of the specified art lesson). Unfortunately the prompt logs were incomplete and the prompts themselves could not be converted to any meaningful numeric system to produce further analyses.
Research Question #2: *What is the experience of the art education staff facilitating this technique?*

The interview data supported a positive experience of staff members who facilitated the art instruction using the DLT method. For the analysis of interview data, data was based on themes found throughout the transcripts and their frequencies. The results emphasized these overarching categories of themes in reference to their perspective of the BHS art program overall, (1) *opportunities through an individualized method*, (2) *consistency through prompt assistance and active participation*, and (3) *improvement in relationships and connection to the greater world* all of which reflect the DLT mission. Participants reported that by providing their students with *opportunities through an individualized method*, students would be able to maximize their potential by receiving the support (e.g., prompt level, organized structure, repetitious exercises) that is specifically fashioned to their needs. By doing so, it would improve student success rates in accomplishing art goals and objectives. A higher percentage of respondents reported the greatest impact of meeting stated art goals and objectives was seen when consistency through prompt assistance and active participation using DLT was implemented and maintained. The major factor here was that respondents placed emphasis on maintaining the consistency as the essential factor in its success. One of the characteristics that differentiates DLT from other methods is its perspective of teamwork in the learning environment. BHS supports learning on an individualized approach, yet encourages socialization skills building through teamwork exercises throughout the instructional day. Staff respondents universally supported the importance of pushing their students to experience multiple situations that engage them with peers, staff and the world in which they live to connect them as participants rather than simple observers.

Results showed positive response to the method used in art educational programming taken as a whole. One interesting finding among the results was that specific participants’ responses
were coded more heavily in certain themes than others. It can be interpreted that although similar training of the DLT methodology was provided to the staff from BHS, the individual experiences and educational/professional backgrounds of each respondent influenced their perspective. The participants shared responses that were educated in the DLT methodology along with experience that was an evident factor in their teaching styles and student progress. The participants also displayed an enthusiastic drive to continually improve and build upon their art program. The interview data were useful in ascertaining the staff perspective on the effectiveness of DLT art instruction.

**Research Question #3: Is there evidence overall that the art program meets its stated goals?**

Findings indicated that the combined results of the analysis of art products and interview data were mixed. While teachers reported and described dedication to the method, quantitative data did not clearly reflect meeting program goals and objectives, and record-keeping issues appeared to be a key factor. Therefore, the BHS art program proved moderately effective using the DLT methodology for students diagnosed with ASD.

While the findings showed that there was moderate evidence in students successfully meeting their stated art goals and objectives, the missing prompt data caused the researcher to question to what degree were the prompts really used? The lack of prompt recording is a significant issue. An important factor that may have contributed to this could be that the teachers did not know ahead of time that the research would be conducted on the prompt material. It should be acknowledged for this program evaluation that the aim was to look at exactly how the art program goals and objectives were carried out in practice. Therefore, forewarning the teachers prior to evaluation was not warranted or needed. The researcher evaluated based on the prompt data that was available at the time of assessment.

Taken from the literature, these issues were concurrently seen in Gurry & Larkin’s (1998)
study. Their data implied that the observed students made ‘strong gains in behavior and attending to classroom stimuli, but not necessarily in specific skill areas’ (p.341). Gurry and Larkin (1998) questioned the language-based or academic skills the students were actually learning. Although their results were varied given the type of evaluation and progress reports used at the time of the study, in comparison to this evaluation outcome reflections of the researchers were very similar. Future studies should address this issue.

Assumptions and Limitations of Study

Assumptions. There were four assumptions made about this study upon the onset of analysis. The first assumption was that traditional methods of working with the child with ASD do not elaborate their use of structured art. The second assumption reflected that structured art programming for the child with ASD is a field worthy of study in Art Education and Art Therapy. The third assumption was that art program evaluation is a useful approach in studying practices in educational programming for children with autism. And the fourth assumption was that current art assessments are frequently not implemented into educational programs thus appropriate student class assignments and individual skill sets lack a baseline for this population.

Limitations. There was inconsistency in assessment and data collection of pupil progress thus undermining demonstration of effectiveness of the program. By providing art products (e.g., given over three timeframes to compare student improvement) and consistent data collection of pupil progress (via prompt logs), there was assumed to be sufficient evaluation data, however as discussed previously the art selected may have represented a bias and key data were missing. At the onset of the research project, the researchers were unclear if the necessary data components would be available as there was no research protocol or documentation method established prior to the data collection. Hence, the researchers set out to determine results on how the art program was achieving its art goals on what the teachers experienced of the students’ progress and through analysis of the art products. Another limitation includes that the interview
participants may not have reported accurately with authentic responses because they were interviewed at the school. It is important to recognize again that the interview data reflected mainly positive reflections that were very related to DLT materials. Therefore, the reflections of the staff participants may have been altered to produce desired results based on potential employer backlash or possibly even the participant’s desire to be seen as an educated professional by the research interviewer.

**Implications of Findings**

The findings of this study show the necessity for evaluating programs specifically designed for students on the autism spectrum. Humphrey & Parkinson (2006), Beecher & Darragh (2011), Seitler (2011) and Odom, et. al, (2010) all endorsed that with the expectation of even more increase in students with ASD, it is important to have methods that not only have potential but also have empirical data to support their effectiveness. This parallels Power and Klopper (2009), who called for the necessity for more research examining the effectiveness of classroom practices of creative arts education.

The findings of this dissertation suggested that the art therapies have promise for children with ASD because the art media allow communication for those cannot speak or use language. This supports Dubowski’s (1984) theory of developmental art therapy where clients could enhance and/or improve deficits of communication or language through the exchange of iconic images that parallel language development. Through the use of symbols and images, children with ASD could enhance their ability to communicate and understand the world around them through the art process and interactions with art materials. Establishing the language and communication benefits of the art making process further support the need for added art programming (art education and art therapy) in educational settings. Successful outcome effects acknowledge these developmental delays and language deficits, therefore proving that the alternative offering of art may positively benefit persons on the spectrum.
This evaluation study may be useful to art educators and art therapists working with children on the spectrum, as art program implementation can be challenging with multiple components necessary to create viable programming of support and success. Sound planning best supports good teaching in art, which provides for the progressive acquisition and reinforcement of skills. This parallels Clement et al. (1998) that teachers need to have a clear idea of what constitutes good standards in art and to have high expectations of their pupils. They suggested that standards be communicated by direct instruction, discussion and display of art in the school. Components to consider in art program implementation include how to structure art experiences for the child with ASD, what to consider when configuring developmental levels for art tasks, and teacher consistency of delivery and maintaining accurate documentation of student progress.

This study also acknowledged the use of structured art experiences for the child with ASD. For art therapists, this notion may be daunting and many feel structured art experiences obscure true creative expression. But for children with ASD, structured art experiences may enable them to express inner creativity while decreasing anxiety and stress. This may in turn, illuminate the individual’s cognitive and emotional development. Similar to the study of Kornreich and Schimmel (1991), the researchers examined art therapy with an 11-year-old male through the use of a drawing series and dialogue. They sought to examine whether or not art therapy could enhance emotional growth and improve socialization and intellectual growth. Their findings verified that art therapy was an effective treatment offering that met the child’s need for support but also encouraged him to increase his own self-coping mechanism and ego development through a semi-structured art experience. Building success experiences for students with ASD using DLT may be achieved through the use of structured art experiences. Structured art experiences enable learning situations to become more predictable and therefore easier for students to overcome distractibility, resistance to change, and lack of motivation.
Power and Klopper’s (2009) set out to identify innovative classroom practices that anticipated the needs and challenges of creative art education for kindergarten through sixth grade. They suggested, “Arts education provides students with valuable opportunities to experience, and build knowledge and skills in self-expression, imagination, creative and collaborative problem solving, communication, creation of shared meanings, and respect for self and others” (p.2). The art lesson plans that BHS created for their students on the spectrum were designed to work on specific art goals (e.g., draw and color) while building areas of fine motor manipulation, creative expression and meaningful experiences (BHS Art Division Yearly Educational Planning, 2009-2010).

Other art educators and art therapists may also consider that developing a means of configuring developmental levels of draw and color are necessary when working with the child with ASD. BHS did not classify their students by developmental levels but by age. Thus, the teacher must acknowledge the varied levels of development when gauging lesson directives and progress of skill set of each student in that particular class. In terms of the varied levels of drawing, this finding corresponds to the ideas put forth by Lowenfeld (1954) and Emery (2004) that children’s art can be accessed as an expression of their schematic stage of development. Lowenfeld’s (1954) design of the drawing developmental stages is a useful tool for art teachers and art educators when developing appropriate coding of drawing levels. These stages would enable the rater (art teacher or art therapist) to score the child based on the most appropriate drawing level. For example, the first stage of drawing development according to Lowenfeld’s (1954) series is the pre-representational drawing stage (re-presenting something not necessarily with intention). If the child with ASD who is being assessed is a ‘low-functioning’ (as categorized by a developmental assessment like the CARS) child with low tone (no muscle tone to hold a writing utensil) and poor fine motor skills (shows improper holding stance of writing utensil), the child may only be able to make 2-3 marks on the paper provided. This could be
considered Level 1 based on the general skills that the child with ASD shows under Lowenfeld’s (1954) drawing series, and then so on for Level 2, Level 3, Level 4, etc. Based on this concept of multiple level learning, art educators and art therapists must be flexible in designing the appropriate level system for each category being assessed for each child with ASD.

Art educators and art therapists may also benefit from the current study as it may provide them with information on how to monitor progress via art assessments and prompt logs. From this study, there were four essential pieces – the CARS, the art rating scale, the teacher prompt logs, and the teacher art lesson plans. The issues found during the study included that teacher documentation was incomplete in some areas. It should be reiterated that the importance of documenting progress in art education and art therapy is essential in establishing effective art program evaluations. Burnaford (2007) also noted that to incorporate documentation that provides evidence of student learning through evaluation research is crucial. Burnaford’s stance on documentation was that, “documentation helps others see what the work looks like; it validates the learning that occurs and provides visual and aural images for thinking processes” (p.36). One of Burnaford’s participating teachers shared, “I always thought I was a good teacher. Documentation helps me know how and when I actually am” (unpublished report).

Recommendations for Future Research

Continued documentation of art programs for children with ASD needs to examine if, why, and how art education is successful with these students, and to provide other educators the information they need to implement similar programs in their own schools. There are four areas of improvement for future exploration within this topic.

The first recommendation is to institute an art assessment at the onset of the school year to gauge student’s level of capabilities, initial skills, etc. A recommended art assessment is the Face Stimulus Assessment (FSA; Betts, 2010). Betts defined the FSA as “a standardized projective drawing assessment designed for use with individuals from multicultural backgrounds...
with multiple disabilities, communication disorders, and autism” (p.77). By using this type of art assessment, especially over multiple timeframes (e.g., onset of the school year and again at the end of the school year) to gauge progress made over time, a valid reference of participant skill assessment and growth could be produced. In addition, the FSA is a good research tool due to its consistent content, the ability to perform the assessment without an assessor observing the actual drawing process, that it may be used with clients who are verbal or nonverbal, and that stimulus pictures are generally nontreating to clients (Betts, 2003).

A second recommendation would be to incorporate a consistent system of prompt data documentation. An important factor worthy of mention is the fact that the art program does not have a clear place for teachers to record the prompt data on the actual artwork, only on a prompt log sheet that may sometimes be undocumented until days after the activity took place. It is appreciated how the teachers work diligently with the students and perhaps with the busy schedules, teachers may experience difficulty in balancing documentation and time spent with the children. Thus, it is recommended that teachers perhaps log prompt data on the back of each artwork at the end of the lesson to record so that they may come back at a later time and notate the actual prompt received to ensure prompts are documented and that there is no missing information. In addition, if prompts or other aids to teaching are used, they should incorporate both levels and frequencies of prompts in a meaningful numeric scale for future use. This would enable concrete data to track the use of prompts, consequently checking for legitimacy of the prompting method. In addition, teacher consistency in maintaining accurate documentation of prompt logs is essential in reporting actual progress made. It was evident from the results of the current study that regular reminders to teachers in maintaining records is necessary for a thorough analysis of actual progress made over the school year.

A third recommendation is that art lessons be organized by difficulty and level of category skill. Based on the idea that ASD is an individually based diagnosis (no two persons are alike in
characteristics), treatment planning and educational programming must consider this factor when establishing art goals and objectives for students on the spectrum. A specific example for designing a drawing level series could be described as: Level 1 Draw may be simply to hold the writing utensil and make 1-2 marks of the provided exercise sample in early Fall, (prompts are provided as necessary by teacher). By the spring/summer period, the child will hold the writing utensil and complete the mark from point A to point B (prompts are provided as necessary by teacher). Level 2 may be slightly more challenging, for example Level 2 would deem that the exercise sample would be a simple shape (e.g., square, circle, triangle) with the same drawing directive. And Level 3 may be to draw a complete picture. Again, these levels would need to be based on the individual cognitive functioning of the student being assessed.

And finally, it is recommended that instituting art therapy programming using structured art experiences be considered for the student with ASD. In unpublished pilot research (Talusand-Dunn, 2009) examining the use of structured art experiences for children with ASD, findings supported the effectiveness of structured art experiences. A single-subject ABAB design investigated art therapy with five children, ages 7 and 8 years, who had been diagnosed with autism spectrum disorders and displayed difficulty in task attention due to self-stimulatory behaviors. Self-stimulatory behaviors (i.e., echolalia, exhibiting strong reaction to minor changes in routine or environment, or repetitive spinning or twirling) were measured over 12 art therapy treatment sessions in an academic school setting. Results indicated an increase in positive behaviors after art sessions as well as a decrease in each child’s specified self-stimulatory behavior. Art therapy was found to be a useful intervention within the school setting. Based on the positive results of that study, it can be assumed that structured art experiences for children with ASD have the potential to address deficit areas. The participants in the study showed variation in drawing developmental levels. Some showed the preliminary stages of drawing levels (scribble stage), while others showed evidence of higher cognitive development in their
schematic forms (e.g., drawing a person without assistance from the researcher, adding details such as environment or groundlines). The developmental levels of drawing from the participants also displayed a variation of ‘artistic’ perspective in which the human form was perceived differently throughout. The findings of this pilot research and the main evaluation research of art education shared many similarities for the child with ASD. For example, going beyond the group-centered (with individual focus needs) art education planning, instituting art therapy using structured art experiences for students with ASD may allow for appropriate individualization of treatment planning and educational goal development. In addition, like art education, art therapy, as an alternative service in collaborative treatment planning may prove fruitful in academic achievements that must be fostered in the future. In comparison of the two areas, there are also apparent differences between them. Osborne (2003) discussed some of the specific prominences placed on their comparison and distinguished the emphasis in art education on skill acquisition, good standards, and on direct instruction. While art therapy holds less emphasis on skill acquisition or on direct instruction, rather more on emotions and empathetic communication. She argued that the place where the two areas could come together is to provide the child with ASD “access to skill acquisition, high standards and a sense of identity, accomplishment and self-knowledge” (413). Development of research in the areas of art therapy and autism holds limitless possibilities. However, without expansion of research in this area, there is no substantial foundation that professionals in the field of art therapy may expand and develop.

Conclusion

Art education, art therapy and autism are important and relevant at this time because of the increase of children diagnosed with ASD each year (Hughes, Katsiyannis, McDaniel, Ryan & Sprinkle, 2011). Research on autism has begun to clarify many aspects of this neurodevelopmental disorder and in the next few years, growth in research regarding this topic is
expected to continue. The research in art education, art therapy and ASD is greatly needed. As educators of persons with autism, it is fundamental to see the world through their eyes and to use this perspective in teaching them how to function as independently as possible. While it is not possible to cure the underlying cognitive deficits of autism, by understanding them it can be possible to design educational programs that are effective in meeting the challenge of this unique developmental disability.

The motivation of this study was based on the need for more empirically based research supporting the effects of art experiences (art education and art therapy) for children with ASD. In accordance with Federal law, school districts must place students with disabilities in integrated settings to the maximum extent appropriate and adopt empirically validated instructional strategies and programs (Hughes, et.al, 2011). The “No Child Left Behind” Act of 2001 reinforced incorporating evidence-based methodologies in the special education student’s IEP (Simpson, 2005). Therefore, research is needed to investigate programs, including those that use art and art therapy.

This study emphasized the necessity of consistent art program evaluations to ensure that method constructs, staff facilitation of the method, and student progress are continuously being enforced and supported. Findings showed moderate effects for students, and emphasized that all staff participants engaged in this study felt that the art making experience brought humanity to the children.
Letter of Parental/Guardian Permission for Student Participation

Request for Parent Permission

Dear Mr. and Mrs. _________:

The Higashi School has partnered with Lesley University to evaluate components of the curriculum and instruction at the school. I have been asked to evaluate the art curriculum at the Boston Higashi School program. I am a professor at Lesley University, a licensed psychologist, and a board certified art therapist. Lesley University doctoral student, Rowena Talusan-Dunn, will be working with me on this project for her doctoral work at Lesley University. She is a registered art therapist who teaches children with autism.

In order to evaluate the Higashi art program, we are requesting access to your child’s art products that were created as part of the art program curriculum during the 2009-2010 school year and to review parts of your child’s academic file. We will not be working directly with your child. We will observe the process in the art classroom a few times. The focus of our evaluation will be to examine art products and compile data to evaluate progress with respect to the goals of the art curriculum. In addition, we would like to review the general academic progress of your child as recorded in the Higashi evaluations for the same academic period in order to watch for similarities or differences between academic growth and growth in the art curriculum. Children’s names will not be recorded or attached to the data in keeping with the protocol of the Higashi School.

The research data will be used for the program assessment for the Boston Higashi School and the doctoral dissertation for Rowena Talusan-Dunn. Ms. Talusan-Dunn’s dissertation will compare the art component in Daily Life Therapy with research conducted previously on Treatment and Education Autistic and Related Communication Handicapped Children Program (TEACCH), another educational methodology for autism.

We have attached an Informed Consent for your signature. I welcome any questions or concerns you may have and would be glad to speak with you by phone or in person. Please feel free to contact me directly at any time. My contact information is: phone 617-349-8682, or e-mail at mkirby@lesley.edu. Thank you for your assistance with this valuable and exciting program evaluation.

Sincerely,

Dr. Michaela Kirby, Psy.D., ATR-BC
Assistant Professor, Lesley University
29 Everett Street
Cambridge, MA 02138
617-349-8682
mkirby@lesley.edu

Rowena E. Talusan-Dunn, MPS, ATR, LCAT
Clinical Art Therapist
Doctoral Student
Lesley University
APPENDIX B

Informed Consent

29 Everett St., Cambridge, MA 02138

INFORMED CONSENT

The Higashi School has partnered with Lesley University to evaluate components of the curriculum and instruction at the school. You are being asked to give permission for use of specific information about your child to evaluate the art curriculum. By signing this consent, you give permission for:

- Your child’s art products created as part of the art program curriculum during the 2009-2010 school year to be viewed, photographed, and evaluated by Michaela Kirby and Rowena Talusan-Dunn.

- Parts of your child’s academic file to be reviewed by Michaela Kirby and Rowena Talusan-Dunn.

- There is to be no direct contact with your child by Michaela Kirby and Rowena Talusan-Dunn.

- Your child’s name will not be recorded or attached to the data gathered in keeping with the protocol of the Higashi School. Identifying details will be kept confidential. Data collected will be coded with a pseudonym, the participant’s identity will never be revealed, and only Michaela Kirby and Rowena Talusan-Dunn will have access to the data collected.

In addition:

- You are free to choose not to participate and to discontinue participation at any time.

- Any and all of your questions will be answered at any time and you are free to consult with anyone (i.e., friend, family) about your decision to participate and/or to discontinue your participation. You can reach Michaela Kirby at 617-349-8682, or e-mail at mkirby@lesley.edu.

- The outcomes of this study may be used for academic purposes (i.e., articles, teaching, conference presentations, supervision etc.) and may include photographs of your child’s art products.

My agreement to participate has been given of my own free will and that I understand all of the statements above. In addition, I will receive a copy of this consent form.

___________________  __________________
Parent’s signature    Date

___________________  __________________
Michaela Kirby, PsyD  Date
## APPENDIX C

### BHS Art Rating Scales

<table>
<thead>
<tr>
<th>Participant:</th>
<th>E1</th>
</tr>
</thead>
<tbody>
<tr>
<td>School Year:</td>
<td>2009-2010</td>
</tr>
<tr>
<td>Level:</td>
<td>Elementary x Intermediate ___</td>
</tr>
<tr>
<td>Art Skill Levels:</td>
<td>Draw ___ Color ___</td>
</tr>
</tbody>
</table>

### ArtGoal Category: DRAW I

#### Image #1

<table>
<thead>
<tr>
<th>Art Skill Level 1</th>
<th>Criteria for Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did the student draw a simple line (A key)?</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>Did the student trace a simple line (A key)?</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>Did the student trace a simple shape such as a circle, square, triangle?</td>
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</tr>
<tr>
<td>Did the student trace a simple image composed of basic shapes with a writing utensil (making marks)</td>
<td>0 1 2 3</td>
</tr>
</tbody>
</table>

#### Image #2

<table>
<thead>
<tr>
<th>Art Skill Level 1</th>
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<tr>
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<td>0 1 2 3</td>
</tr>
<tr>
<td>Did the student trace a simple picture (i.e., circle, square, triangle) composed of simple lines/shapes?</td>
<td>0 1 2 3</td>
</tr>
</tbody>
</table>

#### Image #3

<table>
<thead>
<tr>
<th>Art Skill Level 1</th>
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<td>Did the student draw a simple line (A key)?</td>
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</tr>
<tr>
<td>Did the student trace a simple shape such as a circle, square, triangle approximately 4&quot; x 4&quot;?</td>
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</tr>
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</table>

### Prompt Level: What level of prompt was needed to get this goal? |

<table>
<thead>
<tr>
<th>Levels</th>
<th>HOM</th>
<th>PP</th>
<th>VP</th>
<th>PO</th>
<th>PG</th>
</tr>
</thead>
</table>

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<tr>
<td>Did the student draw a simple image composed of basic shapes with a writing utensil (making marks)</td>
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</tr>
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<tr>
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<th>PP</th>
<th>VP</th>
<th>PO</th>
<th>PG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant:</td>
<td>E1</td>
<td>Criteria for Assessment:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------</td>
<td>----</td>
<td>--------------------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School Year:</td>
<td>2009-2010</td>
<td>0  No evidence of feature</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level:</td>
<td>Elementary x  Intermediate x</td>
<td>1  Some indication of feature</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Art Skill Levels: Draw  Color</td>
<td>2  Clear evidence of feature</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Draw</td>
<td>Color</td>
<td>3  Feature completely addressed</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Art Goal Category</th>
<th>COLOR I</th>
</tr>
</thead>
<tbody>
<tr>
<td>Image #1</td>
<td>COLOR: Daily Coloring Warm up, Simple &quot;Leaf&quot; 11/09</td>
</tr>
<tr>
<td>Art Skill Level 1</td>
<td>Did the student color/paint inside the lines of simple meaningful images composed of basic shapes using a rhythmic up and down stroke?</td>
</tr>
<tr>
<td>Colors</td>
<td>Did the student match colors (through sorting or thematic choice-making skills)?</td>
</tr>
<tr>
<td>Did the student identify primary colors by (red, blue, yellow)?</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>Did the student identify secondary colors by (orange, green, purple)?</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>Crayons/Markers</td>
<td>Did the student make consistent stroke (at least 4x by moving the coloring utensil up and down)</td>
</tr>
<tr>
<td>(or left to right) on the paper to color in the designated area?</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>Prompt Level</td>
<td>what level of prompt was needed to get this goal?</td>
</tr>
<tr>
<td>Color I</td>
<td></td>
</tr>
<tr>
<td>Image #2</td>
<td>COLOR: Daily Coloring Warm up, &quot;Flower&quot; 5/10</td>
</tr>
<tr>
<td>Art Skill Level 1</td>
<td>Did the student color/paint inside the lines of simple meaningful images composed of basic shapes using a rhythmic up and down stroke?</td>
</tr>
<tr>
<td>Colors</td>
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<td>Did the student identify primary colors by (red, blue, yellow)?</td>
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<td>Crayons/Markers</td>
<td>Did the student make consistent stroke (at least 4x by moving the coloring utensil up and down)</td>
</tr>
<tr>
<td>(or left to right) on the paper to color in the designated area?</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>Prompt Level</td>
<td>what level of prompt was needed to get this goal?</td>
</tr>
<tr>
<td>Color I</td>
<td></td>
</tr>
<tr>
<td>Image #3</td>
<td>COLOR: Daily Coloring Warm up, &quot;World&quot; 7/10</td>
</tr>
<tr>
<td>Art Skill Level 1</td>
<td>Did the student color/paint inside the lines of simple meaningful images composed of basic shapes using a rhythmic up and down stroke?</td>
</tr>
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<td>Colors</td>
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<td>(or left to right) on the paper to color in the designated area?</td>
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<td>Prompt Level</td>
<td>what level of prompt was needed to get this goal?</td>
</tr>
</tbody>
</table>
### Criteria for Assessment:

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No evidence of feature (0%-30%); Markings showing between 0-30% on page.</td>
</tr>
<tr>
<td>1</td>
<td>Some indication of feature (31%-79%); Markings showing between 31-79% on the page.</td>
</tr>
<tr>
<td>2</td>
<td>Clear evidence of feature (80%-99%); Marking showing between 80-90% on the page.</td>
</tr>
<tr>
<td>3</td>
<td>Feature completely addressed (91%-100%); Marking showing between 91-100% on the page.</td>
</tr>
</tbody>
</table>

### Prompt Level Descriptors:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOH</td>
<td>Hand-Over-Hand</td>
</tr>
<tr>
<td>PP</td>
<td>Physical Prompt</td>
</tr>
<tr>
<td>VP</td>
<td>Verbal Prompt</td>
</tr>
<tr>
<td>PO</td>
<td>Pointing Prompt</td>
</tr>
<tr>
<td>IP</td>
<td>Independent Work</td>
</tr>
</tbody>
</table>

### Prompt Level Frequency:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>Continuous, numerous</td>
</tr>
<tr>
<td>F</td>
<td>Frequent</td>
</tr>
<tr>
<td>O</td>
<td>Occasional, Light</td>
</tr>
<tr>
<td>I</td>
<td>Initial</td>
</tr>
<tr>
<td>CPs</td>
<td>Counting Prompts</td>
</tr>
</tbody>
</table>
APPENDIX D

Semi-Structured Interview Questions

Boston Higashi School Staff Participant Interview Questions

Each semi-structured interview followed an interview guide in attempt to gain clarification on professional perspectives on how the Daily Life Therapy methodology at the Boston Higashi School assists their students diagnosed on the autism spectrum achieve their art goals and objectives. The following questions served as the basis for the staff participant interview:

General Information
1. What is your role here at the Boston Higashi School?
2. How long have you worked at this school?

Education and Training
1. What is your education prior to coming to work at BHS and the ASD population?
2. What is your certification or licenses you hold to work in this program/population?
3. What type of additional training do you have that related to your position here at BHS?

Experience
1. What is your experience with Autism Spectrum Disorders?
2. What is your experience with the DLT methodology? (please include information regarding training upon hiring, consistent training offered, staff developments, etc.)

Boston Higashi School Art Program
1. How does your program’s philosophy meet the needs of students with autism?
2. Are those goals/objectives met or not met?
3. Do you feel this philosophy works and if so, why?
4. What do you think is the most important, effective and/or powerful within the art program?
5. What do you think the art affects?
6. What is the value of teaching art to the child with ASD?
REFERENCES


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